1 Cairo Governorate — Manor House International Schools

Answer the following questions :

1. Complete the following statements :

1. The fluorescent lamp contains the inert .... gas and a little amount of ....
2. If the effort force is larger than the resistance force, ... is longer than the ....
3. The .... eclipse doesn't harm the eye, while .... eclipse causes harm to eye.
4. Electric lamps convert .... energy into .... energy.
5. The fixed point where the rigid bar rotates on is called ....
6. The .... rotates around the Earth in .... shape orbit.
7. Levers were first described by a scientist whose name is ....

2. Write the scientific term :

1. The method of connecting electric lamps and machines at home. (..................)
2. A phenomenon occurs when a part of the Moon lies in umbra. (..................)
3. The type of levers where the effort force is always smaller than the resistance force. (..................)

3. [A] Give reasons for :

1. We can't see the Sun during the solar eclipse.

....

....

2. Water pump is a first class lever.

....

....

3. We must not touch any electric machine with wet hand.

....

....

PART 3

[B] Problem :

A lever is affected by force 100 N, the length of force arm is 5 cm., and resistance arm is 20 cm, Calculate the resistance force and mention if this lever saves effort or not.

....

....

....

....

....

4. [A] What happens when ... ?

1. The effort force is between the resistance force and fulcrum.

....

2. The Earth prevents all the sunlight from reaching the Moon's surface.

....

[B] 1. This device is : ....

2. Label the figure :

① ....

② ....

③ ....

④ ....

⑤ ....

Additional questions

[A] Put (✓) sign in front of correct statements and (x) sign in front of false statements :

1. Plant loses water in the form of water vapour in photosynthesis process. (   )
2. Endodermis layer regulates the passing of water to the xylem. (   )

[B] Write the scientific term of the following :

1. The vital process by which green plants make their own food. (..................)
2. The energy needed for the plant to form its food. (..................)

2 Cairo Governorate — Patriarchal College

Answer the following questions :

1. [A] Complete the following statements :

1. The values of effort force and resistance force depend on .... and ....
2. Increasing the temperature of the electric machines may cause ....
3. The inner surface of the tube of the fluorescent lamp is covered with ....
4. The .... leads to destroying the tissues of the body.
5. The lever saves effort if the .... arm is shorter than .... arm.
6. .... phenomenon always occurs when the Moon hides the Sunlight during its movement in front of it.

[B] What happens ... ? Why ?

1. A piece of glass is inserted in a closed simple electric circuit.
....
....
2. The electric fires are put out by water.
....
....

2. [A] Write the scientific term :

1. One of the dangers of electricity occurs as a result of the passage of the electric current through the human body. (..................)
2. It is an eclipse that occurs when a part of the Moon enters the shadow area of the Earth. (..................)
3. Falling a person from a ladder as a result of electric shock. (..................)
4. The area appears between the lighted area and the real shadow area and we can see a part of the light source if we stand in this area. (..................)

[B] Mention the function of :

1. Filament.
....
....
2. The battery in the electric circuit.
....
....



PART 3

[C] Mention 2 differences between connection in series and connection in parallel.

....

....

....

....

....

3. [A] Choose the correct answer :

1. Plugging more than one machine to one socket causes ....
   a. electric shock. b. electric fire.
   c. overload. d. overload and electric fire.
2. The lunar eclipse occurs in the .... phase.
   a. new Moon b. crescent c. full Moon d. first quadrature
3. The electric shock may cause ....
   a. electric fire. b. electric overload.
   c. electric burn. d. no correct answer.
4. When the Moon looks slightly faint, it indicates ....
   a. total lunar eclipse. b. partial lunar eclipse.
   c. partial solar eclipse. d. no eclipse.

[B] What is meant by ... ?

1. Electric circuit : ....

....

2. Total lunar eclipse : ....

....

[C] The exerted force of a lever equals 200 N and the resistance value is 1000 N. If the arm of force is 50 cm. Find the value of the arm of resistance and what's the kind of this lever ?

....

....

....

....

....

....

4. [A] Put (✓) or (✗) and correct the wrong :

1. The electric lamp converts electric energy into kinetic energy. ( )

....

2. When we connect more than one lamp in series, the light intensity decreases by increasing their numbers. ( )

....

3. The crowbar is considered from the third class lever but it saves effort. ( )

....

4. The duration of solar eclipse is less than the duration of lunar eclipse. ( )

....

[B] Give reasons for :

1. Don't look directly at the Sun with naked eye during the solar eclipse.

....

....

2. In second class levers, the effort force is always less than resistance force.

....

....

[C] Mention 4 precautions on dealing with electricity.

....

....

....

....

....

Additional questions

[A] Complete the following statements :

1. Plants do .... process to make their own food.
2. Any plant consists of root system and ....

[B] What happens if ... ?

1. A plant is kept in dark for a long period of time.

....

2. The two guard cells of a stoma cannot change their shapes.

....

PART 3

3 Cairo Governorate

Basateen & Dar Al Salam Educational Administration

Answer the following questions :

1. [A] Choose the correct answer :

1. The phenomenon of the lunar eclipse occurs on the .... day of the lunar month.
   a. 10^{th} b. 14^{th} c. 25^{th} d. 28^{th}
2. Lever that has the fulcrum between the force and the resistance ....
   a. wheelbarrow. b. seesaw. c. nutcracker. d. tweezers.
3. Tungsten is preferred to use in electric lamps because of ....
   a. its low melting point. b. its high melting point.
   c. its bad conductivity. d. its high boiling point.
4. In second class lever if the distance between resistance and fulcrum 15 cm ,so the distance between effort force and fulcrum must be equal ....
   a. 5 cm. b. 20 cm. c. 15 cm. d. 10 cm.

[B] From the opposite figures (a) and (b) answer the following questions :

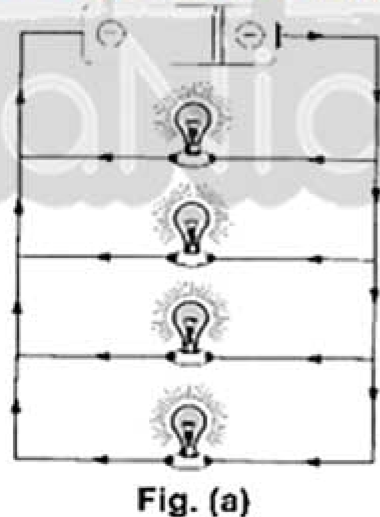


Fig. (a)

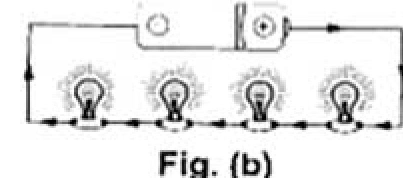


Fig. (b)

1. What is the way of connection in each circuit ?
   a. .... b. ....
2. What happens when the light bulb number (2) in each circuit burns out ?
   a. ....
   b. ....



[C] What happens when ... ?

1. The Earth, the Moon and the Sun are in one straight line and the Moon is in the middle.

....

2. The electric fires are put out by water.

....

2. [A] Write the scientific term :

1. Type of levers that always doesn't save effort. (..................)
2. One of the electric dangers occurs as a result of the passage of the electric current through the human body. (..................)
3. It occurs when the whole Moon enters the semi - shaded area of the Earth. (..................)
4. A tool that changes electric energy into light energy. (..................)

[B] The exerted force on a first-class lever equals 500 Newton and the length of its arm is 20 cm when the value of resistance force is 200 Newton find the value of the arm of the resistance in this example is the lever in state of balance or nor and why ?

....
....
....
....

[C] (1) Look at the following figure and answer the following :

① .... ② .... ③ .... ④ ....

(2) When whole Moon enters to the umbra area of Earth it seems with .... colour because ....

....

3. [A] Mention one use for :

1. Tweezers : ....
2. Argon gas in light bulb : ....

PART 3

[B] Compare between the solar and lunar eclipse. (two points only).

Solar eclipse	Lunar eclipse
....	....
....	....
....	....
....	....

[C] These people are wearing a special type of glasses to observe an astronomical phenomenon.

a. What is the name of this phenomenon ?

....

b. Mention the reason for using these glasses to observe this phenomenon.

....

....

4. [A] Correct the following sentences without changing the underlined words :

1. Glass tube in the light bulb contains <u>mercury vapour.</u>

....

2. The type of levers which never save effort is the <u>2^{nd} class levers.</u>

....

3. Copper and iron are <u>electric insulators.</u>

....

4. The coal holder is used in <u>increasing distance</u>.

....

[B] Give reasons for :

1. Solar and lunar eclipse can be predicted.

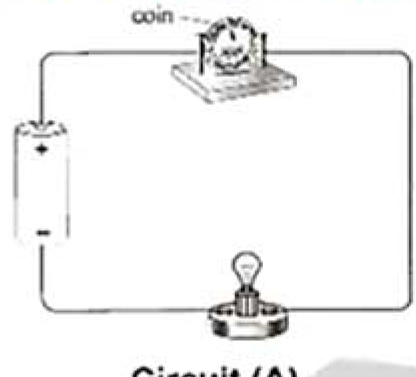
....

....

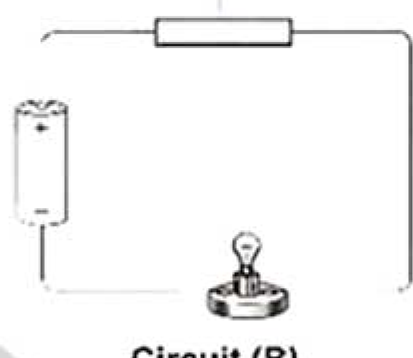
2. The heater shouldn't be placed in a touching position of textiles and carpets.

....

[C] Look at the opposite figures, then answer the following :



Circuit (A)



Circuit (B)

Which circuit becomes closed when the wire is connected to the light bulbs ? Why ?

....

....

....

Additional questions

[A] Put (✓) sign in front of correct statements and (✗) sign in front of false statements :

1. Osmosis is a biological process in which the plant loses water in the form of water vapour. ( )
2. The outermost layer of the plant's root is cortex. ( )

[B] Give reasons for the following :

1. Plants make photosynthesis process.

....

2. The two guard cells change their shapes from time to time.

....

4 Cairo Governorate — East Nasr City Educational Directorate

Answer the following questions :

1. Write the scientific term :

1. The fixed point of a rigid bar. (..........................)
2. Levers that sometimes conserve the effort. (..........................)

PART 3

3. The scientist who invented the light bulb. (..........)
4. The way by which the bulbs are connected by branching routes and the lighting of the lamps is not affected with increase in their number. (..........)
5. A dark inner shadow in which total solar eclipse appear. (..........)
6. A type of solar eclipse in which the Sun appears as lighting ring and is formed when the Moon is in a higher orbit from the Earth. (..........)

2. **[A] Problem :**

A force of 50 N affects a lever of the 2nd class lever its force arm 20 cm, calculate the resistance given that the arm of the resistance = 5 cm.

....

....

....

[B] Put (✓) in front of the right statements and (x) in front of wrong one :

1. The 3rd class lever always save effort. ( )
2. The light bulb contains atmospheric air. ( )
3. The electric lamps are connected in the house in series. ( )
4. The duration of the solar eclipse does not exceed 7 minutes and 40 seconds. ( )

3. **Complete the following :**

1. The lunar eclipse occurs in the .... of lunar month.
2. .... eclipse occurs when the Moon comes between the Sun and Earth.
3. When the electric lamps are connected in parallel with others the light intensity ....
4. The filament of the light bulb is made of ....
5. The crowbar is considered a .... class lever.
6. The force and the resistance are equal in levers if ....

4. **[A] Correct the underlined words :**

1. Nutcracker is considered from **3rd class lever**. (..........)
2. The force between the resistance and fulcrum in the **1st class lever**. (..........)
3. If the arm of force is smaller than the arm of resistance then the lever **saves** the effort. (..........)
4. The **solar** eclipse occurs when the Earth located between Sun and Moon. (..........)

[B] Give reasons for :

1. Seesaw is the 1st class lever and wheelbarrow is 2nd class lever.

....

....

2. Water is not used to put out electric fires.

....

....

Additional questions

[A] Complete the following statements :

1. Any plant consists of root system and ....
2. Plants lose water in the form of the water vapour through .... process.

[B] Write the scientific term of the following :

1. Openings through which the plant under goes the transpiration process. (..................)
2. The root layer, where the root hairs extend. (..................)

5 Cairo Governorate

Rod -El-Farag Directorate
Saint Mary's School

Answer the following questions :

1. [A] Choose the right answer :

1. Glass bulb in electric lamp contains .... gas.
   a. hydrogen b. oxygen c. argon d. nitrogen
2. The .... eclipse takes place when a part of the Moon lies in the shadow area of Earth.
   a. total lunar b. partial lunar c. total solar d. partial solar
3. From the second class lever is ....
   a. sweet holder. b. crowbar. c. nutcracker. d. seesaw.
4. The filament of the electric lamp is made up of ....
   a. iron. b. tungsten. c. copper. d. aluminium.
5. .... is a fixed point that a rigid bar rotates on.
   a. Resistance b. Force c. Fulcrum d. Lever
6. The electric lamp converts the electric energy to the .... energy.
   a. sound b. light c. kinetic d. potential

PART 3

7. When an electric lamp which connected in series with other burns ....

a. the light intensity increases. b. the light intensity decreases.

c. all lamps turn off. d. no correct answer.

8. .... is considered from electric conductors.

a. Iron b. Plastic c. Wood d. Eraser

[B] Give reason for each of the following :

1. Some of the levers are important to man although they do not save effort.

....

....

2. The light bulbs are connected in parallel in the house.

....

....

2. [A] Write the scientific term of each of the following :

1. One of the dangers of electricity occurs as a result of the passage of the electric current to the human body. (..........)
2. The astronomical phenomenon occurs when Moon lies between Sun and Earth on the same line. (..........)
3. Levers have the resistance force between the effort force and fulcrum. (..........)
4. A material that is used to cover the inner surface of the glass bulb of the fluorescent lamp. (..........)
5. A vapour used with argon gas to fill the glass tube of the fluorescent lamp. (..........)
6. A type of lunar eclipse occurs when the whole Moon enters the shadow area of Earth. (..........)

[B] What happens if ... ?

1. You insert a metal bar in an electric socket.

....

2. You place the electric heater too close to furniture and rugs.

....

3. Looking at the solar eclipse without special glasses.

....

3. [A] Complete the following statements :

1. There is a conservation of effort for the first class levers if the .... is larger than ....
2. The manual broom is an example of the .... levers.
3. You can not put out the electric fire with water because water is ....
4. The lunar eclipse may last for more than ....
5. The .... lever may have effort arm equals the resistance arm.

[B] Label this figure :

① ....
② ....
③ ....
④ ....

[C] In the second class lever, the effort force is 50 Newton and its arm is 20 cm. if the resistance arm is 5 cm. Calculate the value of the resistance.

....
....
....

4. [A] Put (✓) or (✗) in front of the following :

1. The lunar eclipse can be easily seen from the surface of the Earth by the naked eye. ( )
2. The scissors is a second class lever. ( )
3. Indirect injuries of electricity result from falling from top of a ladder due to an electric shock. ( )
4. Parallel connection has many branching routes. ( )
5. The Moon revolves around the Earth in an oval shape orbit. ( )
6. The rate of occurrence of lunar eclipse is two eclipses per year. ( )

[B] Define :

Lever.

....
....

PART 3

[C] Mention :

1. One reason of electric burn.

....

2. One precaution in dealing with electricity.

....

Additional questions

[A] Choose the correct answer :

1. Transpiration is a vital process, where the plant is .... water.
   a. gaining b. absorbing c. losing d. (a), (b) and (c)
2. Plant absorbs water by ....
   a. flowers. b. root hairs. c. stem. d. leaves.

[B] Put (✓) sign in front of correct statements and (✗) sign in front of false statements :

1. Root hairs extend from the cells of the endodermis layer. ( )
2. The outermost layer of the plant's root is cortex. ( )

6 Giza Governorate — Al-Mostakbal Modern Language School

Answer the following questions :

1. Complete the following statements :

1. The crowbar is a .... class lever, but the manual broom is a .... class lever.
2. Some of the types of electric lamps are .... and ....
3. ...., ... and .... are examples of materials which are electric insulators.
4. You can't put out the electric fires with water because water is ....
5. .... and .... are two ways of connecting the electricity.
6. In the solar eclipse, ... lies between Earth and the Sun.
7. An .... solar eclipse is formed when the Moon is in the higher orbit from the Earth.

2. **[A] Match :**

(A)	(B)
1. Third class lever	a. levers that always save the effort.
2. Second class lever	b. levers that never save the effort.
3. Lever	c. levers that sometimes save the effort.
4. First class lever	d. a rigid bar rotates around a fixed point and is affected by a force and a resistance.

1. .... 2. .... 3. .... 4. ....

[B] The exerted force of the first class lever equals 500 Newton and the length of its arm is 20 cm and is affected by a resistance with a value of 200 Newton. Find the value of the arm of the resistance.

....

....

3. **Write the scientific term :**

1. The fixed point of a rigid bar on which it rotates. (....................)
2. Levers that have the effort force between the resistance and the fulcrum. (....................)
3. The way where the bulbs are connected by branching routes and the lighting of the lamps isn't affected with increase in their numbers. (....................)
4. One of the dangers of the electricity occurs as a result of the passage of the electric current through the human body. (....................)
5. Occurs when part of the Moon enters the shadow area only. (....................)
6. Occurs when the Moon hide all sunlight and we can't see the Sun totally. (....................)

4. **[A] Give reasons for :**

1. The filament of the light bulb is made of tungsten.

....

2. Not placing flammable materials too close to the electric machine which produces heat energy.

....

3. No annular lunar eclipse is formed like the annular solar eclipse.

....

....

PART 3

4. We shouldn't look at the Sun directly by the naked eye.

....

....

[B] Put (✓) or (✗) :

1. The two phenomena of lunar and solar eclipse are repeated regularly and can be predicted. ( )
2. The lunar eclipse can be easily seen from the surface of the Earth by the naked eye. ( )

Additional questions

[A] What happens if ... ?

1. The two guard cells of a stoma cannot change their shapes.

....

2. A plant is kept in dark for a long period of time.

....

[B] Give reasons for the following :

1. Plants make photosynthesis process.

....

2. The two guard cells change their shapes from time to time.

....

7 Giza Governorate

Experimental Language Schools Inspectorate

Answer the following questions :

1. [A] Complete the following :

1. .... and .... are examples of first class levers.
2. The types of lunar eclipse are .... and ....
3. The fluorescent lamp contains .... gas and a little amount of ....

[B] Correct the underlined words :

1. The effort force and resistance force are equal in the <u>second</u> class lever. (..............)

2. The **electric fire** occurs as a result of passing the electric current through the human body. (................)

3. The electric lamp is used to change **kinetic** energy into light energy. (................)

2. [A] Write the scientific term for each of the following :

1. The way where the bulbs are connected by branching routes. (................)
2. Materials that allow electricity to pass through. (................)
3. A rigid bar that rotate around fixed point and has effort force and a resistance force. (................)
4. It is a closed and continuous path through which the electric current passes. (................)

[B] Give a reason for :

The filament of electric lamp is made of tungsten.

....

3. [A] Choose the correct answer :

1. All the following are bad conductors of electricity except ....
   a. copper. b. plastic. c. rubber.
2. The lunar eclipse occurs in the .... of the lunar month.
   a. end b. middle c. beginning
3. All the following are from the importance of levers except ....
   a. increasing force. b. increasing size. c. increasing speed.
4. .... is a type of lever that always save effort.
   a. First b. Second c. Third

[B] If the force arm is 5 cm, and the resistance arm is 2 cm, if the resistance force is 10 N. Calculate the effort force.

....

....

....

PART 3

4. [A] Put (✓) or (✗) :

1. In houses, the electric lamps are connected in parallel. ( )
2. The distance between resistance force and fulcrum is called effort force arm. ( )
3. The scientist Newton who invented the light bulb. ( )
4. The manual broom increases the speed. ( )

[B] What happens if ... ?

Water is used to put out electric fires.

....

Additional questions

[A] Complete the following statements :

1. Plants lose water in the form of the water vapour through .... process.
2. Any plant consists of root system and ....

[B] Write the scientific term of the following :

1. The vital process by which green plants make their own food. (..................)
2. The energy needed for the plant to form its food. (..................)

8 Alexandria Governorate — Brilliance Language School

Answer the following questions :

1. [A] Complete the following statements :

1. Nutcrackers are from the .... class levers, while scissors are from the .... class levers.
2. The filament of the light bulb is made of .... because it has a high ....
3. .... eclipse occurs when .... comes between the Sun and Earth.
4. Electric wire are made of .... because it is a .... of electricity.

[B] In the opposite circuit :

1. The bulbs are connected in ....
2. What happens if the bulb number 2 is burnt ?

....

....

2. **[A] Write the scientific term :**

1. Substances that don't allow electricity to pass. (....................)
2. One of the dangers of electricity that results from the passing of an electric current through the human body. (....................)
3. A fixed point which the bar rotates around. (....................)
4. The lunar eclipse in which the whole Moon lies in the umbra area of the Earth. (....................)

[B] Calculate the length of the force arm in a lever if you know that the value of the froce is 100 N, the resistance is 200 N, and the length of the resistance arm is 20 cm.

....

....

3. **[A] Choose the correct answer :**

1. .... is considered from the third class levers.
   a. Fishing hook b. Seesaw c. Bottle opener
2. The inventor of the electric lamp is ....
   a. Daniel Rutherford. b. Edison. c. Newton.
3. From the electric insulator substances is ....
   a. rubber. b. iron bar. c. aluminium bar.
4. When the whole Moon enters the semi-shaded area of the Earth .... occurs.
   a. solar eclipse b. lunar eclipse c. no eclipse

[B] Give reasons for :

1. Water is not used in putting out electric fires.

....

....

2. Second class levers always save effort.

....

....

PART 3

4. [A] Put (✓) or (✗) and correct the wrong ones :

1. Arm of force in the third class lever may be equal to resistance arm. ( )

....

2. Looking at the lunar eclipse causes great harms for eyes. ( )

....

3. A fluorescent lamp contains little amount of mercury vapour and argon gas. ( )

....

4. The human body is a bad conductor of electricity. ( )

....

[B] What happens when ... ?

1. The electric lamp contains atmospheric air from inside.

....

2. The resistance arm is longer than the force arm in the lever.

....

....

Additional questions

[A] Choose the correct answer :

1. The plant makes its own food through .... process.
   a. respiration b. digestion c. sensation d. photosynthesis
2. The stoma in a plant is surrounded by .... guard cells.
   a. two b. three c. four d. five

[B] What happens if ... ?

1. A plant is kept in dark for a long period of time.

....

2. The two guard cells of a stoma cannot change their shapes.

....

9 Alexandria Governorate — El-Agamy Educational Directorate

Answer the following questions :

1. Complete the following statements :

1. Crowbar is considered from levers of .... class, while the manual broom is considered from levers of .... class.
2. The filament of the electric lamp is made of .... because it has a high ....
3. Harms of the electric shock depends on .... and ....

2. [A] What happens when ... ?

1. The whole Moon enters the penumbra area of the Earth.
....
2. The glass bulb of the light bulb is filled with air instead of argon gas.
....

[B] Choose the correct answer :

1. All of the following are from the importance of the levers except ....
   a. increasing force. b. increasing distance.
   c. decreasing the speed. d. saving effort.
2. From the materials which are the electric insulators ....
   a. iron. b. rubber. c. copper. d. lead.
3. From the levers that are used to avoid danger is ....
   a. coal holder. b. scissors. c. seesaw. d. wheelbarrow.
4. The astronomical phenomenon that occurs to the Moon when Earth comes between the Sun and the Moon is ....
   a. annular solar eclipse. b. total solar eclipse.
   c. lunar eclipse. d. solar eclipse.

3. [A] Give reasons for each of the following :

1. The nutcracker is considered a second class lever.
....
....
2. The glass bulb of the light bulb is filled with inert argon gas.
....
....

PART 3

[B] Write the scientific term for each of the following :

1. A tool used to convert the electric energy into light energy. (........................)
2. A danger of electricity that causes the damage of tissue. (........................)
3. The material that covers the inner surface of the fluorescent lamp. (........................)
4. The fixed point of the rigid bar. (........................)

4. [A] A force affecting a second class lever is 400 Newton and the length of its arm is 100 cm. and has a resistance with a value 800 Newton. Calculate the value of the arm of resistance.

....

....

....

[B] Identify the astronomical phenomenon in the following figure :

1. Name the phenomenon :

....

2. Label the figure :

① ....

② ....

③ ....

Additional questions

[A] Complete the following statements :

1. Any plant consists of root system and ....
2. Plants do .... process to make their own food.

[B] Give a reason for the following :

Plants make photosynthesis process.

....

10 Alexandria Governorate — East Zone Educational Directorate

Answer the following questions :

1. [A] Complete the following sentences :

1. The distance between the fulcrum and the force is called ...., while the distance between the resistance and the fulcrum is called ....
2. Electric lamps convert .... energy into .... energy.
3. The solar eclipse occurs when .... , ... and the Earth are on a straight line.
4. Iron is considered as .... conductor of electricity, while wood is .... conductor of electricity.

[B] What happens if ... ?

1. A part of the Moon enters the shadow area of the Earth.

....

2. The electric lamps in the houses are connected in series.

....

....

2. [A] Write the scientific term for each of the following :

1. The fixed point of a rigid bar. (..................)
2. One of the dangers of electricity that occurs as a result of the passage of the electric current through the human body. (..................)
3. An inert gas that is found in the glass bulb of the electric lamp. (..................)

[B] The exerted force of the first class lever equals 500 Newton and the length of its arm is 20 cm. and is affected by a resistance with a value of 20 Newton. Find the value of the arm of the resistance.

....

....

....

3. [A] Put (✓) in front of the correct statements and (✗) in front of the wrong ones :

1. Water is used to put off electric fires. (   )
2. The second class levers save effort. (   )
3. The effort force is measured in centimetre or metre. (   )
4. Crowbar is an example of the first class levers. (   )

PART 3

[B] Give reason for each of the following :

1. Doctors warn from the direct observation of the Sun during solar eclipse.

....

....

2. The Moon is coloured in red at the start of the total lunar eclipse.

....

....

4. [A] Choose the correct answer :

1. Which of the following levers is used to avoid dangers ....
   a. coal holder. b. scissors. c. manual broom.
2. The duration of the solar eclipse is .... than the duration of the lunar eclipse.
   a. greater b. less c. equal
3. All of the following levers don't save effort except ....
   a. ice holder. b. hockey bat. c. nutcracker.
4. When the electric lamp connected in parallel with others in the electric circuit, the light intensity ....
   a. decreases. b. increases. c. doesn't change.

[B] Look at the following figures, then answer :

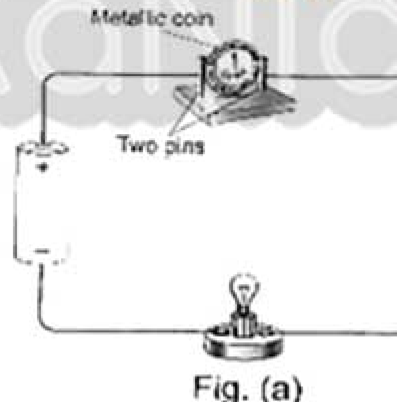


Fig. (a)

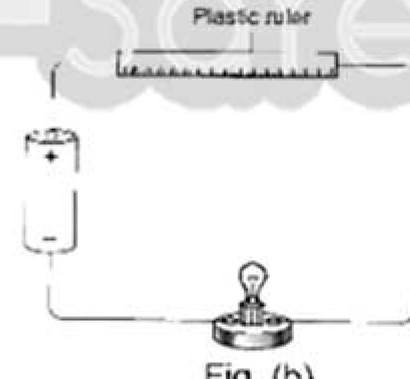


Fig. (b)

In which figure the light bulb will light up when the electric wires connected to the bulb ? And why ?

....

....

Additional questions

[A] What happens if ... ?

1. The two guard cells of a stoma cannot change their shapes.
....
2. A plant is kept in dark for a long period of time.
....

[B] Put (✓) sign in front of correct statements and (✗) sign in front of false statements :

1. Plant loses water in the form of water vapour in photosynthesis. ( )
2. Water rises inside the plant stem through the wood tissue. ( )

11 Alexandria Governorate — El-Gomrok Educational Directorate

Answer the following questions :

1. [A] Complete the following statements :

1. .... occurs when Earth, Moon and Sun are nearly on one straight line with the Moon in the middle.
2. Iron is considered as an electric ...., while wood is considered as an electric ....
3. The bottle opener and wheelbarrow are levers of the .... kind, while the manual broom is levers of the .... kind.

[B] Problem :

The exerted force of the first class lever equals 500 Newton and the length of its arm is 20 cm and is affected by a resistance with a value of 200 Newton. Find the resistance arm.

The law of lever = ... × .... = ... × ....
= .... × .... = ... × ....
= ....

2. [A] Choose the correct answer :

1. Which of the following is found in the fluorescent lamp but not found in the electric lamp ? ....
   a. Neon. b. Argon. c. Mercury vapour.

2. Force arm is sometimes equal to resistance arm in .... class lever.
   a. first   b. second   c. third
3. Operating more than one machine from one socket causes an ....
   a. electric fire.   b. electric burn.   c. electric shock.
4. Lunar eclipse can be seen only in .... of lunar month.
   a. the middle   b. at the beginning   c. at the end

[B] Give reasons for :

1. The second class levers have mechanical benefits and conserve efforts.
....
....
2. You must not look directly at the Sun during solar eclipse.
....
....

3. [A] Write scientific term :

1. The way where the bulbs are connected by branching routes lighting of lamps. (..................)
2. The fixed point of a rigid bar rotates on. (..................)
3. One of electric dangers that causing damage of body tissues. (..................)
4. Greek scientist who invented the lever. (..................)

[B] What happens when ... ?

1. A part of Moon lies in the Earth's umbra. (shadow)
....
2. A man touches an uncovered wire carrying electric current.
....

4. The figure represents the light bulb :

[A] Label the figure:

① ....
② ....
③ ....
④ ....
⑤ ....

[B] The type of number ⑤ is ....



[C] What is function of number 2 ?

....

Additional questions

[A] Complete the following statements :

1. Plants lose water in the form of the water vapour through .... process.
2. Any plant consists of root system and ....

[B] Write the scientific term of the following :

1. The vital process by which green plants make their own food. (..................)
2. The energy needed for the plant to form its food. (..................)

12 Alexandria Governorate — Middle Zone Educational Directorate

Answer the following questions :

1. [A] Complete the following statements :

1. The .... type of lever always conserves effort, while the .... type always doesn't conserve effort.
2. Some levers make the tasks perform more easily by avoiding ....
3. Water pump is a .... class lever, while .... is a third class.
4. From the types of electric lamps are .... and ....
5. The .... phenomenon occurs when the .... hides sunlight from a part of the Earth.

[B] What happens when ... ?

A spark resulting from the electric fires touches any part of a human body.

....

2. [A] Write the scientific term :

1. A way of electric connection, in which light intensity of bulbs decreases by the increase in their number. (..................)
2. A part of light bulb that connects the base with the filament of the lamp. (..................)
3. One of the dangers of electricity causes damage to the body tissues. (..................)

PART 3

[B] Compare between solar and lunar eclipse according to the following :

Points of comparing	Solar eclipse	Lunar eclipse
The body that hides sunlight :	....	....
Occurrence time :	....	....
Duration time :	....	....

3. Choose the correct answer :

1. The force that is exerted to equilibrate the resistance is called ....
   a. fulcrum. b. effort. c. friction. d. fulcrum & effort.
2. .... is/are used to pick up very small objects.
   a. Coal holder b. Tweezers c. Manual broom d. Seesaw
3. The effort force and the resistance force are measured in ....
   a. Newton. b. Hertz. c. metre. d. cubic centimetre.
4. Which of the following is found in fluorescent lamp and is not found in electric bulb ? ....
   a. Neon. b. Argon. c. Mercury. d. Water vapour.
5. Connecting more than one electric device in the same socket leads to ....
   a. electric shock. b. overload.
   c. electric burn. d. electric shock & burn.
6. The Moon seems red when it is totally in the .... of the Earth.
   a. umbra area b. penumbra area
   c. extension of the cone shadow d. no correct answer

4. [A] Calculate the following :

1. Find the length of resistance arm if you know that the effort force is 200 N, the force arm is 20 cm. and affects on a resistance of 400 N.

   ....

   ....

2. Does the lever save effort or not ? Why ?

   ....

   ....

[B] Give reason for the following statements :

1. We should not look directly at the Sun with the naked eye.

....

....

2. Pressing on the chest of electric injured with palms.

....

Additional questions

[A] Choose the correct answer :

1. Root hairs extend from cells of .... layer.
   a. epidermis b. cortex c. endodermis d. xylem
2. Tiny holes in the plant leaves are called ....
   a. roots. b. stoma. c. seeds. d. root hairs.

[B] Give reasons for the following :

1. Each stoma is surrounded by two guard cells.

....

2. Plants make photosynthesis process.

....

13 Al Qaliubya Governorate — Al Resala Language School

Answer the following questions :

1. [A] Complete the following statements :

1. The crowbar is considered a .... lever but the manual broom is considered a .... lever.
2. The types of lunar eclipse are .... and ....
3. .... , ... and .... are examples of materials that are electric conductors.
4. The type of levers that always conserves effort is ...., while the type of levers that always doesn't conserve effort is ....
5. .... and .... are two ways of connecting electric circuits.
6. The light bulb consists of .... , ... and ....
7. The lever doesn't save effort when .... arm is shorter than the .... arm.

PART 3

[B] Correct the underlined words :

1. In the **third** class levers the force arm may be equal to the resistance arm. (..................)
2. To observe **lunar** eclipse you need special glasses. (..................)
3. We put off electric fires by **water**. (..................)
4. The fluorescent lamp contains inert gas **neon**. (..................)
5. The fishing hook is an example on **first** class levers. (..................)
6. The lunar eclipse occurs **five** times per year. (..................)
7. Touching the spark that results from electric fires causes **electric shock**. (..................)
8. When the effort force = 20 N , resistance is 8 N and the effort force arm = 4 cm , so the resistance arm = **100 cm**. (..................)

2. [A] Put (✓) or (✗) :

1. The spiral base has two pieces of lead. (   )
2. It is safe to observe the solar eclipse with naked eyes directly. (   )
3. The effort arm is measured in centimetre or metre. (   )
4. On connecting the light bulbs in series, the lighting of the bulbs decreases by increasing the number of bulbs. (   )
5. Touching a naked wire that has an electric current passing through it causes an electric fire. (   )
6. Bottle opener is a kind of levers that pick up the very small objects. (   )

[B] What happens when ... ?

1. Both of force arm and resistance arm equal 10 metres.

....

2. A part of your body touches an electric iron that is connected to electricity.

....

3. The Moon comes between the Sun and the Earth on one straight line.

....

[C] Write the labels, then answer :

1. ① ....
   ② ....
   ③ ....
   ④ ....

①
②
③
④

2. The part no. ③ should be .... in order to the light bulb glows.
   a. closed. b. opened. c. unimportant.
3. If we insert a piece of wood in this circuit, it will be a (an) ....
   a. closed. b. opened. c. both (a) and (b).

3. [A] Write the scientific term :

1. The faint outer shadow area. (............)
2. The fixed point of a rigid bar on which the bar rotates. (............)
3. Effort force × Its arm = Resistance × Its arm. (............)
4. The metal that is used in making the filament of the fluorescent lamp. (............)
5. The type of lunar eclipse in which the whole Moon enters the umbra of the Earth. (............)
6. The type of levers that its mid-point is the effort force. (............)

[B] Give reasons for :

1. The light bulbs are connected in parallel in the house.
   ....
   ....
2. The nail clipper saves effort.
   ....

[C] Give an example for :

1. A first class lever that saves effort :
   ....
2. An increasing speed lever :
   ....
3. A type of material that covers the inner surface of fluorescent lamp :
   ....
4. A precaution that you should follow on dealing with electricity :
   ....

4. [A] Choose the correct answer :

1. During the start of the total lunar eclipse, the Moon colour tends to be ....
   a. yellow. b. orange. c. red.
2. Increasing the temperature of the electric machines causes ....
   a. electric shock. b. electric burn. c. electric fire.

PART 3

3. Which of the following gases is found in the fluorescent lamp, but not in the light bulb ? ....

a. Neon. b. Mercury vapour. c. Argon.

4. The .... of the eye is affected by the harmful rays of the Sun during the solar eclipse.

a. cornea b. eye pupil c. retina

5. All of the following are from the second class levers except ....

a. wheelbarrow. b. nutcracker. c. water pump.

6. Plugging many machines to one socket may cause ....

a. electric overload. b. electric fires. c. both (a) and (b).

[B] Problem :

The exerted force on a third class lever equals 500 Newton and the length of its arm is 20 cm and is affected by a resistance with a value of 200 Newton. Calculate the value of the arm of resistance, then mention if this lever save effort or no and give reason for your answer.

....

....

....

[C] Choose from column (A), what suits column (B) :

Column (A)	Column (B)
1. The inventor of the light bulb.	a. The Sun
2. The main source of light.	b. Tweezers
3. Used to pick up very small objects.	c. The lunar eclipse
4. Lasts for more than two hours.	d. Thomas Edison

1. .... 2. .... 3. .... 4. ....

[D] Look at the figure blow, then answer :

1. What is the name of this phenomenon ?

....

2. No. ① represents the .... area.

3. No. ② represents the .... area.

4. What happens if a part of the Moon enters the area (2) during its path ?

....

Additional questions

[A] What happens if ... ?

1. Root system is not extended between the soil particles.

....

....

2. There is no osmosis feature in the plant.

....

[B] Complete the following statements :

1. Plants do .... process to make own food.
2. The outermost layer of a plant root is called ....

14 Menofia Governorate — Shebeen El-Koum Educational Directorate

Answer the following questions :

1. [A] Complete the following statements :

1. From the first class lever .... and ....
2. The .... is between Sun and .... in the solar eclipse.
3. The harms resulted from the electric shock depend on .... and ....
4. From the second class levers .... and from the third class levers ....

[B] What is the function of each of the following ... ?

1. The argon gas in the light bulb.

....

2. The two pieces of lead in the base of the light bulb.

....

2. [A] Write the scientific term :

1. A type of lever in which the arm of force may be equal the arm of resistance. (....................)
2. The type of levers that always conserve effort. (....................)

PART 3

3. The material that covers the inner surface of the tube of the fluorescent lamp. (........................)

4. It occurs to the Moon when a part of it enters the shadow area of the Earth. (........................)

[B] Give reason for each of the following :

1. No annular lunar eclipse is formed.

....

....

2. The third class levers don't conserve effort.

....

....

3. [A] Choose the correct answer :

1. From the electric conductors ....

a. aluminium. b. wood. c. plastic.

2. From the levers that conserve effort ....

a. nutcracker. b. tweezers. c. coal holder.

3. When fulcrum is between effort force and resistance so the lever is .... lever.

a. first b. second c. third

4. When connecting the light bulbs in parallel with many light bulbs the light intensity ....

a. decreases. b. increases. c. remains constant.

[B] What happens when ... ?

1. When the whole Moon enters the umbra (shadow) area of the Earth.

....

2. If the man looks directly with the naked eye to the Sun during the solar eclipse.

....

4. [A] Put (✓) or (✗) in front of the following statements :

1. The colour of the Moon is white in the total lunar eclipse. ( )

2. The regular fires that are not resulted from electricity are extinguished by water. ( )

3. The first man who described the lever was Archimedes. ( )
4. The arm of force is shorter than the arm of resistance in the third class lever. ( )

[B] A balanced first class lever was affected by an effort force 500 Newton and the arm of force 20 cm and was affected by resistance 200 Newton find the length of the resistance arm.

....

....

[C] Label the figure :

① ....
② ....
③ ....
④ ....

Additional questions

[A] What happens if ... ?

1. The two guard cells of the stoma cannot change their shapes.
....
2. A plant is kept in dark for a long period of time.
....

[B] Choose the correct answer :

1. Transpiration is a vital process, where the plant is .... water.
   a. gaining b. absorbing c. losing d. (a), (b) and (c)
2. Plant absorbs water by ....
   a. flowers. b. root hairs. c. stem. d. leaves.

15 Gharbia Governorate — El-Gharbia Educational Directorate

Answer the following questions :

1. [A] Complete the following statements :

1. The .... class levers sometimes save effort.
2. In connecting all parts of the electric circuit, it will be .... circuit.
3. If a dark object gets in the way of light, ... of the object is formed.
4. .... is an example of levers that is used to perform tasks accurately.





PART 3

[B] Give reasons for each of the following :

1. The filament is the most important component in the electric lamp.

....

2. The effort force doesn't equal the resistance force in second class levers.

....

2. [A] Write the scientific term for each of the following :

1. The structure of the human eye which is badly affected by the solar eclipse. (..........)
2. The type of materials, which prevents the passage of electric current in the electric circuit. (..........)
3. The type of machines which are beneficial in many ways except saving effort. (..........)
4. The damage of body tissues resulting from direct contact with the electric current. (..........)

[B] Problem :

A long metallic bar is hanged from its midpoint. A force of 40 Newton exerted at 5 cm from midpoint. Find the weight which must be hanged at 25 cm from this point to make the bar get balanced.

....

....

....

3. [A] Choose the correct answer :

1. Levers were first described by the Greek scientist ....
   a. Archimedes. b. Newton. c. Edison. d. Galileo.
2. When the Moon enters the semi-shaded area of the Earth, ... eclipse occurs.
   a. partial lunar b. total lunar c. no lunar d. semi lunar
3. Which of the following is a component of the fluorescent lamp but not in the light bulb ? ....
   a. Argon gas. b. Mercury vapour. c. Water vapour. d. Neon gas.
4. The resistance force is between the effort force and fulcrum in ....
   a. manual broom. b. crowbar. c. wheelbarrow. d. fishing hook.

[B] What happens when ... ?

1. The Moon passes between the Earth and the Sun on one straight line.

....

2. The force arm and the resistance arm have the same length.

....

....

4. [A] Correct the underlined words :

1. The **scissors** is used to increase the speed. (..................)
2. The Moon gets coloured **blue** at the beginning of the lunar eclipse. (..................)
3. The outer faint shadow of the Earth is called **antumbra**. (..................)
4. **The lead wire** carries the light bulb in upright position. (..................)

[B] Look at the opposite figure, then complete the following :

1. The electric lamps are connected in ....
2. If one of the electric lamps in the circuit burnt, the lightning of the other lamps ...., because ....
....

Lamp (1)
Lamp (2)
Lamp (3)

Additional questions

[A] Put (✓) sign in front of correct statements and (✗) sign in front of false statements :

1. The outermost layer of the plant's root is cortex. (   )
2. Endodermis layer regulates the passing of water to the xylem. (   )

[B] Write the scientific term of the following :

1. The vital process by which green plants make their own food. (..................)
2. The energy needed for the plant to form its food. (..................)

16 Dakahlia Governorate West Mansoura Educational Directorate

Answer the following questions :

1. [A] Complete the following statements :

1. The factors that determine the value of force and resistance are .... and ....

PART 3

2. Levers which make tasks perform more easily by means of .... and ....

3. .... and .... are two types of injuries resulting from improper use of electricity.

4. Electric current passes through the electric circuit when it is ....

5. The tube of fluorescent lamp contains inert .... gas and little of ....

6. Solar eclipse occurs when .... is between Sun and .... and it has .... types.

[B] From the opposite figure, answer the following :

1. What is the type of this lever ?
....

2. Does it conserve effort ?
....

3. Which is longer the force arm or the resistance arm ?
....

4. Give an example for this type of lever ?
....

2. [A] Write the scientific term :

1. One of the dangers of electricity is that it destroys the body tissue. (..................)
2. Materials which do not allow electricity to pass through. (..................)
3. A way used to connect electric lamps in branching routes. (..................)
4. The part of the human eye that is harmed when looking directly at the Sun. (..................)
5. The area that lies between the dark shadow area and lighted area. (..................)
6. Force × Its arm = Resistance × Its arm. (..................)

[B] What happen when ... ?

1. Electric lamp contains atmospheric air.
....

2. A part of the Moon enters the shadow area of the Earth.
....

3. Putting out an electric fire by using water.
....

3. [A] Put (✓) or (✗) :

1. Tweezer is a type of 3rd class lever. ( )
2. The first class levers always conserve effort. ( )
3. The human body is bad conductor of electricity. ( )
4. The solar eclipse occurs at night. ( )
5. Electric overload may cause electric fires. ( )
6. The presence of wood in the electric circuit make it opened. ( )

[B] Give reasons for :

1. The third class levers are very important although they do not conserve the effort.
   ....
   ....
2. Electric lamps are connected in parallel in the home.
   ....
   ....
3. Occurrence of total lunar eclipse.
   ....
   ....
4. The filament of light bulb is made of tungsten.
   ....
   ....

4. [A] Choose the correct answer :

1. Levers were described by ....
   a. Newton. b. Faraday. c. Archimedes.
2. Electric wires must be covered with ....
   a. plastic. b. iron. c. aluminium.
3. The phenomena of .... eclipse does not occur to the Moon.
   a. partial b. annular c. total
4. The arm of resistance in the .... class lever may be equal effort arm.
   a. first b. second c. third
5. The phenomena of lunar eclipse occurs on the .... day of the lunar month.
   a. 5th b. 14th c. 25th

PART 3

6. Electric lamp changes electric energy to ....

a. light. b. kinetic. c. potential.

[B] In the opposite circuit :

1. The lamps are connected in ....

2. What happens if the switch is replaced by a metallic coin ?

....

3. What happens if the lamp number (2) is burnt ?

....

1 2 3

Additional questions

[A] Give reasons for the following :

1. Plants make photosynthesis process.

....

2. The two guard cells change their shapes from time to time.

....

[B] Complete the following statements :

1. Plants lose water in the form of the water vapour through .... process.

2. Any plant consists of root system and ....

17 Ismailia Governorate — Science Inspectorate

Answer the following questions :

1. [A] Choose the correct answer :

1. The force arm is sometimes equal to the resistance arm in the .... class.

a. first b. second c. third

2. .... is considered from electric conductors.

a. Plastic b. Iron c. Wood

3. When the whole Moon enters the semi-shaded area of the Earth, ... occurs.

a. solar eclipse b. lunar eclipse c. lunar non - eclipse

4. .... is from the second class lever.

a. Scissors b. Nutcracker c. Coal holder

[B] The figure represents the light bulb, look then write what the numbers indicate :

① ....

② ....

③ ....

④ ....

[C] Problem :

If a first class lever is affected by a force = 500 N and its arm = 20 cm. and the resistance force = 200 N. Calculate the resistance arm.

....

....

....

2. [A] Complete :

1. The lever doesn't conserve effort when .... arm is shorter than .... arm.
2. The fluorescent lamp contains .... gas and a little of ....
3. Scissors is considered a .... class lever, while the fishing hook is ....

[B] The following figures represent two electric circuits (a) and (b) :

(a) (b)

1. Mention the way in which the light bulbs are connected in each circuit.

(a) .... (b) ....

PART 3

2. Which way (a) or (b) could be used to connect the electric lamps in the house ?

....

3. Mention the reason.

....

....

[C] Mention the function of lever in :

1. Hockey bat.

....

2. Manual broom.

....

3. [A] Give reasons for :

1. The second class levers always conserve effort.

....

....

2. We should not look directly at the Sun with naked eye during the solar eclipse.

....

....

[B] Write the scientific term :

1. The fixed point at which the lever rotates around. (..................)
2. One of the dangers of electricity that causes the damage of the body tissues. (..................)
3. It occurs when the whole Moon enters the shadow area of the Earth. (..................)
4. A rigid bar that rotates around a fixed point and affected by an effort force and a resistance force. (..................)

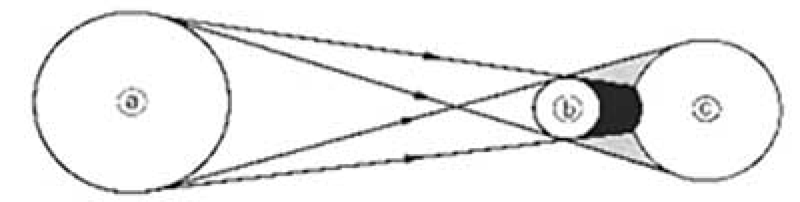
[C] Notice the following figure, then answer the following questions :

1. The figure represents an astronomical phenomenon which is ....
2. Write the labels (a,b and c) in the figure :

ⓐ ....

ⓑ ....

ⓒ ....



4. [A] What happens when ... ?

1. The force arm and resistance arm are equal.

....

2. Part of Moon enters the shadow area of the Earth.

....

[B] Put (✓) or (✗) in front of the following :

1. The first class levers has the resistance between the force and the fulcrum. ( )
2. The Moon is coloured in red at the start of total lunar eclipse. ( )
3. The soda water opener is an example of second class lever. ( )
4. Fires resulted from electricity are put out by water. ( )

[C] Mention two of the precaution when dealing with electricity ?

1. ....
2. ....

Additional questions

[A] Choose the correct answer :

1. The plant makes its own food through .... process.
   a. respiration b. digestion c. sensation d. photosynthesis
2. The stoma in a plant is surrounded by .... guard cells.
   a. two b. three c. four d. five

[B] Write the scientific term of the following :

1. Parts in the plant through plant absorbs water and mineral salt from the soil. (....................)
2. The energy needed for the plant to form its food. (....................)

18 Suez Governorate — Suez Educational Directorate

Answer the following questions :

1. [A] Complete the following statements :

1. In the second class levers, the resistance force is found between the .... and ....

2. Wheelbarrow is considered a .... class levers, while crowbar is an example of the .... class levers.
3. The simple electric circuit consists of light bulb, electric switch, ... and ....
4. The fluorescent lamp contains .... gas.
5. The electric shock occurs as a result of the passing of .... through the human body.

[B] Put (✓) or (✗) in fornt of the following statements :

1. In the fluorescent lamp, the inner surface of the tube is covered with a phosphoric material. (   )
2. Fires resulted from electricity are extinguished by water. (   )
3. The two phenomena of lunar and solar eclipse are repeated regularly and can be predicted. (   )
4. In houses, electric lamps are connected in parallel. (   )

2. [A] Write the scientific term :

1. A fixed point on which the bar rotates around. (..............)
2. A way of connecting the electric lamps, in which the light intensity decreases with the increase in their number. (..............)
3. A tool used to convert electric energy to light energy. (..............)
4. Materials not allowing the electric current passing through it. (..............)

[B] Give reasons for :

1. The electric heater should not be placed too close to furniture.
....
2. The second class levers conserve effort.
....
....

3. [A] Choose the correct answer :

1. The electric wires are made of ....
   a. plastic. b. wood. c. copper.
2. All the following are types of lunar eclipse except ....
   a. annular eclipse. b. total eclipse. c. partial eclipse.
3. All the following are functions for levers, except ....
   a. decreasing speed. b. increasing distance. c. avoiding dangers.
4. If the whole Moon enters the penumbra area of the Earth, its light becomes ....
   a. clear. b. dark. c. faint.

[B] A force of 200 Newton affected a lever of the third class where its force arm was 5 cm. If the value of the resistance was 100 Newton. Calculate the length of the arm of resistance.

....

....

4. [A] Correct the underlined words :

1. The force arm is sometimes equal to resistance arm in the **second** class lever. (....................)
2. **Solar eclipse** does not require precaution, warnings or special devices to look at it. (....................)

[B] Compare between solar eclipse and lunar eclipse :

P.O.C	Solar eclipse	Lunar eclipse
Reason :	....	....
Time of occurrence :	....	....

[C] Complete the labels :

① ....

② ....

③ ....

④ ....

Additional questions

[A] What is meant by ... ?

1. Osmosis feature.

....

2. Selective permeability.

....

[B] What happens when ... ?

The two guard cells of a stoma cannot change their shapes.

....

PART 3

19 Kafr El-Sheikh Governorate Science Inspectorate

Answer the following questions :

1. [A] Choose the correct answer :

1. Duration of lunar eclipse extends for more than .... hours.
   a. 6 b. 4 c. 2
2. The filament inside the electric lamp is made of ....
   a. aluminium. b. tungsten. c. iron.
3. The scissors are two levers of the .... class lever.
   a. first b. second c. third
4. Solar eclipse always occurs ....
   a. in the morning. b. at night. c. at dawn.

[B] The device which is drawn is well known :

1. Give a name to this device.
   ....
2. What happens in case that any of the parts are not connected ?
   ....
   ....

2. [A] Choose from column (B) which suits column (A) :

(A)	(B)
1. Most electric machines emit	a. partial lunar eclipse occurs.
2. Coal holder is a lever used to	b. heat.
3. Electric lamp is prevented from air to burn its filament by	c. avoid danger.
4. When a part of the Moon enters the shadow area of the Earth.	d. the glass bulb.

1. .... 2. .... 3. .... 4. ....

[B] Write the scientific term in front of each of the following statements :

1. Materials that allow the flow of electricity through them. (..............)
2. Injuries caused by electricity which are not a direct cause. (..............)

3. [A] Give reason for each of the following :

1. Most electric lamps contain argon gas inside.

....

....

2. Second class levers always conserve the effort.

....

....

[B] Correct the underlined words in the following statments :

1. Connecting the electric lamps in the house must be in **series.** (..........)
2. **Solar** eclipse occurs when the Earth comes between the Moon and the Sun. (..........)
3. Light becomes **more bright** when we connect more than one bulb in series. (..........)
4. Fluorescent lamp contains **oxygen** gas inside. (..........)

4. [A] Put (✓) or (✗) in front of the following :

1. Lunar eclipse causes harms to the eyes. (   )
2. We must not play with electric connections. (   )
3. Copper and iron are insulators to electricity. (   )
4. Third class levers don't conserve the effort. (   )

[B] Complete the following statement :

Lunar eclipse can be seen in any place on the .... and when it starts the colour of the Moon tends to be ....

Additional questions

[A] Write the scientific term of the following :

1. It loses water from the plant in the form of water vapour. (..........)
2. A system in the plant that is branched and extended through the soil to fix the plant. (..........)

[B] What is the function of ... ?

Root system of the plant.

....

PART 3

20 Behiera Governorate — Ismael El-Habrouk Language School

Answer the following questions :

1. [A] Complete the following statements :

1. Lunar eclipse occurs when the Sun, Earth and .... are one straight line and .... in the middle.
2. When the force arm is longer than resistance arm, ... is smaller than ....
3. In the .... class lever the .... is between fulcrum and the resistance.
4. Some of the types of electric lamps are .... and ....

[B] Give reasons for :

1. The filament of the light bulb is made of tungsten.

....

....

2. Some levers save effort.

....

2. [A] Correct the underlined words :

1. The lever consists of **fulcrum only**. (..........)
2. The inner surface of the tube of the fluorescent lamp is covered with **carbonic material**. (..........)
3. Nutcracker is one from the **first** class lever. (..........)
4. Touching the naked wires that has an electric current by hand leads to **electric fire**. (..........)

[B] What is the importance or uses of ... ?

1. The inert argon gas in the light bulb.

....

....

2. Special glasses in the solar eclipse.

....

....

3. [A] Write the scientific term of each of the following :

1. The lever that scissors is one example. (..................)
2. The lunar eclipse in which the whole Moon enters the shadow area of the Earth. (..................)
3. Force × Its arm = Resistance × Its arm. (..................)
4. A rigid bar that rotates around a fixed points and is affected by an effort force and a resistance force. (..................)

[B] What happens when ... ?

1. We remove the two point of connection of the fluorescent.
....
2. The resistance force is larger than the effort force.
....

4. [A] Choose the correct answer :

1. During the start of the total lunar eclipse, the colour of the Moon tends to be ....
   a. gray. b. yellow. c. orange. d. red.
2. Which of following used to avoid dangers ....
   a. coal holder. b. wheelbarrow.
   c. scissors. d. manual broom.
3. Which of the following gasses is found in the fluorescent lamp but not in the light bulbs ? ....
   a. Neon. b. Argon.
   c. Mercury vapour. d. Water vapour.
4. The effort force and resistance force are measured in ....
   a. Newton b. metre c. centimetre d. Hertz

[B] A force 400 Newton affects a first class lever and its arm of force equals 20 cm. The resistance equals 200 Newton and its arm of resistance equals 20 cm. in this example is the lever in state of balance or not and why ?

....
....
....
....
....

PART 3

Additional questions

[A] Put (✓) sign in front of correct statements and (✗) sign in front of false statements :

1. Plant stoma is surrounded by two woody cells. ( )
2. Endodermis layer regulates the passing of water to the xylem. ( )

[B] Give reasons for the following :

The two guard cells change their shapes from time to time.

....

21 Fayoum Governorate

Science Supervision for Governmental Language School

Answer the following questions :

1. [A] Complete the following statements :

1. .... occurs when the .... comes between the Sun ray and a part or whole of the Moon.
2. The type of levers that always conserves effort is ...., while the type of the levers that always does not conserves effort is ....
3. The crowbar is considered a .... class lever, but the manual broom is a .... class lever.
4. The filament of the light bulb is made of .... and that is because it has a high ....

[B] The arm length of a first class lever is 10 cm, and the length of the arm of the resistance is 20 cm. If the resistance has a value of 200 Newton, calculate the value of the affecting force.

....

....

2. [A] Correct the underlined words in the following statements :

1. The electric lamp converts the electric energy to the **kinetic** energy. (..............)
2. The **first** class lever has the resistance between the force and the fulcrum. (..............)

3. Wood is considered a **good** conductor to electricity. (..................)
4. **The force** is fixed point that a rigid bar sits on. (..................)

[B] What happens if ... ?

1. You place the electric heater too close to furniture and rugs.
....
....
2. A part of Moon enters the shadow area of the Earth.
....

3. [A] Choose the correct answer :

1. The fluorescent lamp contains the inert .... gas.
   a. hydrogen b. nitrogen c. argon d. helium
2. .... eclipse occurs when the Moon enters the semi-shaded area only. In this case, the Moon light turns to be faint.
   a. No lunar b. Partial lunar c. Total lunar d. Total solar
3. .... is example of materials that are electric conductors.
   a. Wood b. Glass c. Plastic d. Copper
4. The electric lamps are connected in the house in ....
   a. series. b. parallel. c. variable. d. (a) and (b).

[B] Look at the following figure, then write the labels on the figure :

① ....
② ....
③ ....
④ ....

4. [A] Write the scientific term for each of the following statements :

1. A rigid bar rotates around a fixed point, and is affected by a force and a resistance. (..................)
2. It occurs to the Moon when it completely enters the shadow area of the Earth. (..................)
3. One of the dangers of the electricity is causing the damage of the tissues of the body. (..................)
4. Levers that sometimes conserve the effort. (..................)

PART 3

[B] Give reasons for :

1. The phenomenon of solar and lunar eclipse is considered an application of the umbra phenomenon.

....

....

2. There are two pieces of lead in the light bulb.

....

Additional questions

[A] Rearrange the layers of the root from inside to outside.

....

....

[B] What is the function of ... ?

1. Root hairs.

....

2. Endodermis layer of the plant root.

....

....

22 El-Minia Governorate — El-Ahd El-Gdeed Language School

Answer the following questions :

1. [A] Complete the following statements :

1. Effort force arm is measured by .... unit.
2. Nutcracker is considered an example for .... class lever.
3. The first scientist who made the electric lamp was ....
4. Lunar eclipse occurs .... per year.

[B] Problem :

If the exerted force of the first class lever 500 N and the length of its arm is 20 cm. and is affected by a resistance with value of 200 N. Determine the location of resistance.

....

....

....

2. [A] Write scientific term :

1. A force that results from the body that we want to move. (..................)
2. A type of lever that sometimes conserves effort. (..................)
3. The source of electricity in electric circuit. (..................)
4. Astronomical phenomena occur when the Sun, Earth and the Moon in one straight line and the Moon in the middle. (..................)

[B] 1. The opposite figure represents ....

2. Label the figure :

① ....
② ....
③ ....
④ ....

3. [A] Correct the underlined words :

1. The electric current has many branches when the electric lamps are connected in **series** connection. (..................)
2. Scissors is a **third** class lever. (..................)
3. Total lunar eclipse occurs when the whole of Moon enters **penumbra** area. (..................)
4. The filament is made of **iron**. (..................)

[B] Give reasons for :

1. Third class lever always does not save effort.
....
....
2. We wear special glasses during solar eclipse.
....
....

4. [A] Choose the correct answer

1. .... is the Moon's faint outer shadow in which the partial solar eclipse appears.

a. Umbra b. Penumbra c. Antumbra

2. .... is used to prevent the air from reaching the filament.

a. Base of bulb   b. Glass bulb   c. Tungsten

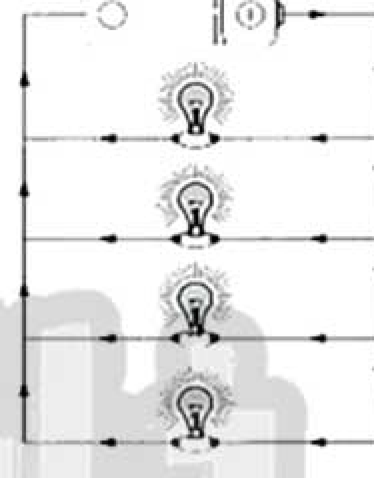
3. Time taken by solar eclipse is .... time taken by lunar eclipse.

a. equal   b. shorter   c. longer

4. In second class lever, ... in the middle.

a. fulcrum   b. effort force   c. resistance force

[B] Write the type of each connection and which of them is used to connect the electric lamps inside the house and why ?



1. .... connection   2. .... connection

3. We use .... inside the house, because ....

....

Additional questions

[A] What happens if ... ?

There is no osmosis feature in the plant.

....

....

[B] Give reasons for the following :

1. The two guard cells change their shapes from time to time.

....

2. Plants make photosynthesis process.

....

23 Assuit Governorate — Administration of Governmental Language Schools

Answer the following questions :

1. Complete the following statements :

1. The type of levers where the arm of the force and the arm of resistance are equal is ....
2. In the solar eclipse, ... is found between the Sun and ....
3. Metallic materials are considered from the electric .... , while glass and rubber are considered from the electric ....
4. The manual broom is a .... class lever.

2. [A] Put (✓) or (✗) in front of each statement and correct the wrong one :

1. The fulcrum in scissors lies between force and resistance. ( )
....
2. The spiral base of the light bulb glows due to passing the electric current through it. ( )
....
3. If the force arm is smaller than the resistance arm, the lever saves effort. ( )
....
4. Lunar eclipse occurs in the end of lunar month. ( )
....
5. Human body is a good conductor of electricity. ( )
....

[B] What happens when ... ?

1. Putting off the electric fires with water.
....
2. The light bulb in the house are connected in series.
....

3. [A] Write the scientific term :

1. Way used to connect electric lamps in branching routes. (..............)
2. It occurs when part of the Moon enters the shadow area of Earth (..............)

PART 3

3. One of the dangers of the electricity is that it destroys the tissue of the body. (..................)

4. Type of levers doesn't save effort. (..................)

[B] Give reasons for :

1. We should not look at the Sun by the naked eye.

....

....

2. Sometimes the first class lever saves effort.

....

4. [A] Look at the opposite figure, then answer :

1. This device is ....

2. Label the figure :

① ....

② ....

③ ....

[B] A force of 50 Newton affected a lever of the 2nd class its force arm 20 cm. Calculate the resistance given that the arm of the resistance = 5 cm.

....

....

Additional questions

[A] Complete the following statements :

1. Plants absorb water and mineral salts from the soil by .... in their roots.

2. The .... are small openings that are widely spread on the .... surface of plant leaves.

[B] Give reasons for the following :

Plants make photosynthesis process.

....

24 Sohag Governorate — Science Inspectorate

Answer the following questions :

1. **[A] Complete the following statements :**

1. In first class levers, the fulcrum is found between .... and ....
2. The crowbar is an example of the .... class levers.
3. The law of levers states that ....
4. The fluorescent lamp contains .... gas.

[B] A force of the first class lever equals 500 Newton and its force arm 20 cm calculate the resistance arm given that the resistance is 200 Newton.

....

....

2. **[A] Put (✓) or (✗) in front of each statement and correct the wrong one :**

1. Electric shock occurs as a result of passage of the electric current to the human body. (   )

   ....
2. Connecting electric lamps in the house is in series. (   )

   ....
3. Although the two phenomena of lunar and solar eclipses attract people's attention, they do not affect life on Earth. (   )

   ....
4. If the injured with an electric shock can't breathe start immediately artificial respiration. (   )

   ....

[B] What happens if ... ?

The light bulbs in the house are connected in series.

....

....

[C] Mention precautions in dealing with electricity (two only).

....

....

3. **[A] Write the scientific term in each of the following :**

1. The fixed point at which the lever rotates. (..............)

2. A tool used to convert the electric energy into light energy. (..................)
3. Type of levers doesn't save effort. (..................)
4. The substances that allow the electric current to pass through them. (..................)
5. It occurs when a part of the Moon enters the shadow area of the Earth (..................)
6. The way where the bulbs are connected by branching routes. (..................)

[B] Give reasons for the following :

1. The second class levers save effort.
....
....
2. We shouldn't look directly at the Sun with naked eye during the solar eclipse.
....
....
3. Decorative lamps are connected in parallel not in series.
....

4. [A] Choose the correct answer :

1. Force arm is sometimes equal to resistance arm in .... class levers.
   a. first b. second c. third
2. From the examples of good elecrtic conductors substances is ....
   a. wood. b. plastic. c. copper.
3. .... is considered from the third class levers.
   a. Fishing hook b. Seesaw c. Nutcracker

[B] Compare between solar and lunar eclipse (terms to the duration).

Solar eclipse : ....
Lunar eclipse : ....

[C] Look at the following figure, and then write the labels on the figure :

① ....
② ....
③ ....
④ ....

Additional questions

[A] Write the scientific term of the following :

1. A system in the plant that is branched and extended through the soil to fix the plant. (....................)
2. It loses water from the plant in the form of water vapour. (....................)

[B] Give reasons for the following :

Plants make photosynthesis process.

....

25 South Sinai Governorate — Science Inspectorate

Answer the following questions :

1. [A] Complete the following statements :

1. In the third class levers, the .... lies between .... and fulcrum.
2. From electric insulators .... and ....
3. From the components of the electric circuit electric wires, switch and ....
4. Solar eclipse occurs when .... lies between the .... and the Sun on the same straight line.
5. The .... from electric dangers that causes damage of the human body tissues.
6. Sweet holder is an example of .... levers.

[B] Give reasons for :

1. We cannot use water in putting out electric fires.

....

2. Some levers are important to man although they don't save effort.

....

2. [A] Choose the correct answer :

1. .... is from a second class levers.

a. Scissors b. Wheelbarrow c. Manual broom

PART 3

2. When a lamp is connecting in parallel with several other lamps, the light intensity of the lamps ....

a. decrease. b. increase. c. remains as it is.

3. From electric conductors ....

a. wood. b. rubber. c. iron.

4. .... is an example of first class levers.

a. Crowbar b. Bottle opener c. Manual broom

5. In electric lamp the electric energy changes into .... energy.

a. kinetic b. light c. sound

6. The time taken by the solar eclipse .... the time taken by the lunar eclipse.

a. less than b. more than c. equal

[B] Mention some of the important precautions when dealing with electricity.

1. ....

2. ....

[C] The opposite figure represents lunar eclipse phenomenon, observe it, then label the figure.

① ....
② ....
③ ....
④ ....

3. [A] Put (✓) or (✗), then correct the wrong one :

1. The electric lamp contains mercury vapour. ( )
....

2. Bottle opener is a third class lever. ( )
....

3. Lunar eclipse doesn't require precautions or special devices to observe. ( )
....

4. Scissors from first class levers. ( )
....

5. If the force arm longer than the resistance arm so the force more than the resistance and the lever saves effort. ( )

....

6. In the second class levers the force arm may be equal to the resistance. ( )

....

[B] Compere between :

Total lunar eclipse	Partial lunar eclipse
....	....
....	....
....	....
....	....
....	....

[C] Join from column (A) with the suitable in column (B) :

(A)	(B)
1. Fishing tool	a. connect the electric current.
2. Seesaw	b. source of the electric current.
3. Nutcracker	c. sometimes saves effort.
4. Two pieces of lead in the base of the light bulb	d. always save effort.
	e. always don't save effort.

1. .... 2. .... 3. .... 4. ....

4. [A] Write the scientific term :

1. Levers at which the resistance lies between force and fulcrum. (..........)
2. A coiled thin wire made of tungsten in the light bulb. (..........)
3. A way in which the light bulbs are connected one after another, where the light intensity of the bulbs decreases by increasing their numbers. (..........)
4. The fixed point of a rigid bar on which the bar rotates. (..........)
5. One of the dangers of electricity occurs as a result of passage of electric current through the human body. (..........)
6. Levers at which the fulcrum lies between force and resistance. (..........)

[B] In a lever if the length of the force arm = 4 cm, the length of the resistance force = 6 cm , and the value of the force = 48 N. Calculate the value of the resistance.

....

....

[C] What happens if ... ?

1. The electric lamps in decorative lights are connected in series not parallel.

....

2. The whole Moon enters the semi-shaded area of the Earth.

....

3. The electric lamps contain atmospheric air.

....

4. You place the electric heater too close to furniture and rugs.

....

Additional questions

[A] Put (✓) sign in front of correct statements and (✗) sign in front of false statements :

1. Root hairs extend from the cells of the endodermis layer. ( )
2. Water rises inside the plant stem through the wood tissue. ( )

[B] What happens if ... ?

1. A plant is kept in dark for a long period of time.

....

2. Absence of cell membrane of the root hairs.

....

....

Cairo Governorate

1 Manor House International Schools

1. 1. argon - mercury vapour.
2. resistance arm - effort force arm.
3. lunar - solar
4. electric - light
5. fulcrum.
6. Moon - oval
7. Archimedes.

2. 1. Parallel connection.
2. Partial lunar eclipse.
3. Second class levers.

3. (A) 1. Because it emits harmful rays as ultraviolet (UV) and infrared rays that effects the eye retina and may cause blindness within few seconds.
2. Because it has fulcrum between the effort force and the resistance force.
3. To avoid occurrence of electric shock as water is a good conductor of electricity.

(B) Effort force × its arm = Resistance force × its arm

$100 \times 5 = \text{Resistance force} \times 20$

$\therefore \text{Resistance force} = \frac{100 \times 5}{20} = 25 \text{ Newton}$

- This lever does not save effort.

4. (A) 1. This lever is a third class lever.
2. The total lunar eclipse occurs.

(B) 1. Light bulb.
2. ① Glass bulb.
② Argon gas.
③ Tungsten filament.
④ Copper and lead wires.
⑤ Base of light bulb.

Additional questions

(A) 1. (✗) 2. (✓)

(B) 1. Photosynthesis process.
2. Light energy.

2 Patriarchal College

1. (A) 1. the effort arm - the resistance arm.
2. electric fires.
3. phosphoric material.
4. electric burns 5. resistance - effort
6. Solar eclipse

(B) 1. The electric current doesn't flow through the electric circuit, because glass is a bad conductor of electricity.
2. The fire will increase and could harm the rescuers, because water is a good conductor of electricity.

2. (A) 1. Electric shock.
2. Partial lunar eclipse.
3. Indirect injuries. 4. Penumbra.

(B) 1. It heats up and emits light when the electric current passes through it.
2. It works as a source of electric current in the electric circuit.

(C) **In series connection :**
- The light bulbs are connected one after another in one route.
- The light intensity decreases by increasing the number of lamps.

In parallel connection :
- The light bulbs are connected in branching routes.
- The light intensity remains constant by increasing or decreasing the number of lamps.

3. (A) 1. d. overload and electric fire.
2. c. full Moon 3. c. electric burn.
4. d. no eclipse.

(B) 1. It is a closed and continous path through which, the electric current will pass making a complete cycle.
2. It is the lunar eclipse which occurs when the whole Moon enters the shadow area (umbra) of the Earth.

(C) Effort force × its arm = Resistance force × its arm

$200 \times 50 = 1000 \times \text{its arm}$

$\therefore \text{Arm of resistance} = \frac{200 \times 50}{1000} = 10 \text{ cm.}$







PART 3

- This lever may be first class lever or second class lever.

4. (A) 1. (✗) ... into light energy.
2. (✓)
3. (✗) ... the first class lever and it saves effort.
4. (✓)

(B) 1. Because it emits harmful rays to the eye such as ultraviolet (UV) and Infrared rays that may cause blindness within few seconds.
2. Because in the 2^{nd} class levers, the effort force arm is always longer than the resistance arm.

(C) a. Do not play with the electric connections.
b. Do not insert a metallic object in the socket.
c. Do not touch the electric machines that are connected to the electric current with wet hand.
d. Do not try to fix or clean any electric machine while connected to the electric current.

Additional questions

(A) 1. photosynthesis
2. shoot system.

(B) 1. The plant cannot make photosynthesis process due to the absence of light.
2. The stoma cannot be opened or closed.

3 Baseteen and Dar Al Salam Educational Administration

1. (A) 1. b. 14^{th}
2. b. seesaw.
3. b. its high melting point.
4. b. 20 cm.

(B) 1. a. Parallel connection.
b. Series connection.
2. a. The other three light bulbs are lighted up with the same light intensity.
b. The other three light bulbs are turned off.

(C) 1. The solar eclipse occurs.
2. The fire will increase and could harm rescuers as water is a good conductor of electricity.

2. (A) 1. Third class levers.
2. Electric shock.
3. Lunar non - eclipse.
4. Electric lamp.

(B) Effort force × its arm = Resistance force × its arm
$500 \times 20 = 200 \times$ its arm
∴ Resistance arm $= \frac{500 \times 20}{200} = 50$ cm.
- Yes this lever is in state of balance, because the result of effort force × its arm equals to the result of resistance force × its arm.

(C) 1. ① The Sun.
② The Moon.
③ The Earth
④ Earth's umbra.
2. red - Earth's atmosphere doesn't absorb Infrared rays coming from the Sun and refracts them on Moon.

3. (A) 1. Used to pick up very small objects.
2. It protects the filament from burning and increases the lifetime of the filament.

(B)

Solar eclipse	Lunar eclipse
1. It is seen at morning only.	1. It is seen at night only.
2. It causes serious harms to eyes.	2. It doesn't cause any harm to eyes.

(C) a. The solar eclipse.
b. Because the outer solar corona emits ultraviolet (UV) and Infrared rays that effects the eye retina and may cause blindness within few minutes.

4. (A) 1. ... in the fluorescent lamp contains ...
2. ... which always save ...
3. Wood and plastic ...
4. The manual broom is ...



(B) 1. Because they occur as a result of the Earth and the Moon rotation which can be calculated by scientists.
2. To avoid occurrence of electric fires.

(C) Circuit (A), because iron (coin) is a good conductor of electricity which allow the flow of electricity through.

Additional questions

(A) 1. (×) 2. (×)

(B) 1. To make their own food.
2. To open and close the stoma.

4 East Nasr City Educational Directorate

1. 1. Fulcrum.
2. First class levers.
3. Thomas Alpha Edison.
4. Parallel connection.
5. Umbra.
6. Annular solar eclipse.

2. (A) Effort force × Its arm = Resistance force × Its arm

50 × 20 = Resistance force × 5

$\therefore$ Resistance force = $\frac{50 \times 20}{5}$ = 200 Newton

(B) 1. (×) 2. (×) 3. (×) 4. (✓)

3. 1. middle 2. Solar
3. doesn't change. 4. tungsten.
5. first
6. the arm of resistance and force are equal.

4. (A) 1. 2^{nd} class lever.
2. 3^{rd} class lever.
3. doesn't save.
4. lunar.

(B) 1. Because seesaw has fulcrum between the effort force and resistance force, while wheelbarrow has the resistance force between effort force and fulcrum.
2. Because water is a good conductor of electricity, so it increases fires and could harm the rescuers.

Additional questions

(A) 1. shoot system. 2. transpiration

(B) 1. Stomata. 2. Epidermis.

5 Rod El Farag Directorate Saint Mary's School

1. (A) 1. c. argon 2. b. partial lunar
3. c. nutcracker. 4. b. tungsten.
5. c. Fulcrum 6. b. light
7. b. the light intensity decreases.
8. a. Iron

(B) 1. Because they are important in other things as :
- Increasing distance.
- Increasing speed.
- Avoid dangers.
- Accuracy in performance.

2. To prevent turning off all the lamps of the house when one lamp is damaged or turned off.

2. (A) 1. Electric shock.
2. The solar eclipse.
3. Second class levers.
4. Phosphoric material.
5. Mercury vapour.
6. Total lunar eclipse.

(B) 1. This causes an electric shock.
2. When the temperature of the heater increases, it may burn the furniture and rugs causing electric fires.
3. The eye retina will be harmed and blindness may occur.

3. (A) 1. resistance force - effort force.
2. third class
3. a good conductor of electricity.
4. two hours. 5. first class

(B) ① Electric bulb.
② Electric wire.
③ Switch.
④ Battery.

(C) Effort force × Its arm = Resistance force × Its arm

50 × 20 = Resistance force × 5

$\therefore$ Resistance force = $\frac{50 \times 20}{5}$ = 200 Newton

PART 3

4. (A) 1. (✓) 2. (×) 3. (✓) 4. (✓)
5. (✓) 6. (✓)

(B) It is a rigid bar (straight or curved) that rotates around a fixed point called fulcrum, and is affected by an effort force and a resistance force.

(C) 1. A part of your body touches fire or spark resulting from the electric fire.
2. Do not play with the electric connections.

Additional questions

(A) 1. c. losing 2. b. root hairs.
(B) 1. (×). 2. (×)

Giza Governorate

7 Al-Mostakbal Modern Language School

1. 1. first - third
2. light bulb - fluorescent lamp.
3. Wood - plastic - rubber
4. a good conductor of electricity
5. Series connection - parallel connection.
6. Moon 7. annular

2. (A) 1. b 2. a 3. d 4. c

(B) Effort force × its arm = Resistance force × its arm

$500 \times 20 = 200 \times$ its arm

$\therefore$ Resistance arm $= \frac{500 \times 20}{200} = 50$ cm.

3. 1. Fulcrum. 2. Third class lever.
3. Parallel connection.
4. Electric shock.
5. Partial lunar eclipse
6. Total solar eclipse.

4. (A) 1. Because it has high melting point that prevents the melting of the filament at high temperatures.
2. To avoid occurrence of electric fires.
3. Because the Earth has a great size relative to the Moon, so it always blocks all sunlight when it comes between the sun and the Moon on the same straight line.
4. Because the Sun emits harmful rays to the eye such as ultraviolet rays (UV) and infrared ray that may cause blindness within few seconds.

(B) 1. (✓) 2. (✓)

Additional questions

(A) 1. The stoma cannot be opened or closed.
2. The plant cannot make photosynthesis process due to the absence of light.

(B) 1. To make their own food.
2. To open and close the stoma.

7 Experimental Language Schools Inspectorate

1. (A) 1. Crowbar - scissors
2. total lunar eclipse - partial lunar eclipse.
3. argon - mercury vapour.

(B) 1. first 2. electric shock
3. electric

2. (A) 1. Parallel connection.
2. Electric conductors.
3. Lever. 4. Electric circuit.

(B) Because it has high melting point that prevents the melting of filament at high temperatures.

3. (A) 1. a. copper. 2. b. middle
3. b. increasing size. 4. b. Second

(B) Effort force × its arm = Resistance force × its arm

Effort force $\times 5 = 10 \times 2$

$\therefore$ Effort force $= \frac{10 \times 2}{5} = 4$ Newton

4. (A) 1. (✓) 2. (×) 3. (×) 4. (×)

(B) The fire will increase and could harm the rescuers as water is a good conductor of electricity.

Additional questions

(A) 1. transpiration 2. shoot system.
(B) 1. Photosynthesis process.
2. Light energy.

Alexandria Governorate

8 Brilliance Language School

1. (A) 1. second - first
2. tungsten - melting point.
3. Solar - Moon
4. copper - good conductor

(B) 1. series.
2. The other two light bulbs are turned off.

2. (A) 1. Electric insulators.
2. Electric shock.
3. Fulcrum.
4. Total lunar eclipse.

(B) Effort force × its arm = Resistance force × its arm

$100 \times \text{its arm} = 200 \times 20$

∴ The length of the force arm

$= \frac{200 \times 20}{100} = 40$ cm.

3. (A) 1. a. Fishing hook 2. b. Edison.
3. a. rubber. 4. c. no eclipse.

(B) 1. Because water is a good conductor of electricity, so it increases fires and could harm the rescuers.
2. Because the effort arm is always longer than the resistance arm, so the effort force is always smaller than the resistance force.

4. (A) 1. (✗) .... in the first class lever ....
2. (✗) .... the solar eclipse ....
3. (✓)
4. (✗) .... a good conductor ....

(B) 1. The filament will burn when it heats up.
2. The effort force is larger than the resistance force and the lever doesn't conserve effort.

Additional questions

(A) 1. d. photosynthesis 2. a. two

(B) 1. The plant cannot make photosynthesis process due to the absence of light.
2. The stoma cannot be opened or closed.

9 El-Agamy Educational Directorate

1. 1. first - third
2. tungsten - melting point.
3. the strength of the electric current that passes through the human body - the time taken by the electric current.

2. (A) 1. The Moon light turns to be faint without being eclipsed which is known as lunar non-eclipse.
2. The filament will burn when it heats up.

(B) 1. c. decreasing the speed.
2. b. rubber. 3. a. coal holder.
4. c. lunar eclipse.

3. (A) 1. Because it has the resistance force between fulcrum and the effort force.
2. To protect the filament of tungsten from burning so the lifetime of the filament increases.

(B) 1. Electric lamp. 2. Electric burns.
3. Phosphoric material.
4. Fulcrum.

4. (A) Effort force × its arm = resistance force × its arm

$400 \times 100 = 800 \times \text{its arm}$

∴ Resistance arm $= \frac{400 \times 100}{800} = 50$ cm.

(B) 1. Lunar eclipse.
2. ① Moon. ② Earth. ③ Sun.

Additional questions

(A) 1. shoot system.
2. photosynthesis

(B) To make their own food.

10 East Zone Educational Directorate

1. (A) 1. effort arm - resistance arm.
2. electric - light
3. the Moon - the Sun
4. good - bad

(B) 1. Partial lunar eclipse occurs.
2. When one of the lamps damaged or turned off, all the other lamps in the house will turn off.




PART 3

2. (A) 1. Fulcrum. 2. Electric shock.
3. Argon gas.

(B) Effort force × Its arm = Resistance force × Its arm

500 × 20 = 20 × Its arm

∴ Resistance arm = $\frac{500 \times 20}{20}$ = 500 cm.

3. (A) 1. (×) 2. (✓) 3. (×) 4. (✓)

(B) 1. Because the Sun emits harmful rays to the eye such as ultraviolet rays (UV) and Infrared rays that may cause blindness within few seconds.
2. Due to the refraction of some infrared rays that are not absorbed by the Earth's atmosphere.

4. (A) 1. a. coal holder. 2. b. less
3. c. nutcracker. 4. c. doesn't change.

(B) Fig. (a), Because iron (metallic coin) is a good conductor of electricity.

Additional questions

(A) 1. The stoma cannot be opened or closed.
2. The plant cannot make photosynthesis process due to the absence of light.

(B) 1. (×) 2. (✓)

11 El-Gomrok Educational Directorate

1. (A) 1. Solar eclipse
2. conductor - insulator
3. second - third

(B) The law of lever = Effort force × Its arm = Resistance force × Its arm

500 × 20 = 200 × Its arm

∴ Resistance arm = $\frac{500 \times 20}{200}$ = 50 cm.

2. (A) 1. c. Mercury vapour.
2. a. first 3. a. electric fire.
4. a. the middle

(B) 1. Because the effort arm always longer than the resistance arm, so the effort force is always smaller than the resistance force.
2. Because the Sun emits harmful rays to the eye such as ultraviolet rays (UV) and infrared rays that cause blindness within few seconds.

3. (A) 1. Parallel connection.
2. Fulcrum. 3. Electric burns.
4. Archimedes.

(B) 1. Partial lunar eclipse occurs.
2. This causes an electric shock.

4. (A) ① Tungsten filament. ② Argon gas.
③ Copper and lead wire.
④ Glass bulb.
⑤ Base of the light bulb.

(B) spiral base.

(C) It protects the filament from burning when it heats up and increases its lifetime.

Additional questions

(A) 1. transpiration
2. shoot system.

(B) 1. Photosynthesis process.
2. Light energy

12 Middle Zone Educational Directorate

1. (A) 1. second - third 2. dangers.
3. first - manual broom
4. light bulbs - fluorescent lamps.
5. solar eclipse - Moon

(B) This may cause electric burns for a human body.

2. (A) 1. Series connection.
2. Copper and lead wire.
3. Electric burns.

(B)

Points of comparing	Solar eclipse	Lunar eclipse
The body that hides sunlight :	Moon.	Earth.
Occurrence time :	It is seen at morning only.	It is seen at night only.
Duration time :	It doesn't exceed seven minutes and few seconds.	It may last for more than two hours.

3. 1. b. effort. 2. b. Tweezers
3. a. Newton. 4. c. Mercury.
5. b. overload. 6. a. umbra area

4. (A) 1. Effort force × its arm = Resistance force × its arm
$200 \times 20 = 400 \times$ its arm
$\therefore$ Resistance arm $= \frac{20 \times 200}{400} = 10$ cm.
2. Yes, this lever saves effort because the force arm is longer than the resistance arm.

(B) 1. Because it emits harmful rays to the eye such as ultraviolet rays (UV) and infrared rays that cause blindness within few seconds.
2. To maintain the heart beats of the injured.

Additional questions

(A) 1. a. epidermis 2. b. stoma
(B) 1. To control opening and closing the stoma.
2. To make their own food.

13 Al Qaliubya Governorate

1. (A) 1. first class - third class
2. total lunar eclipse - partial lunar eclipse.
3. iron - copper - lead
4. second class - third class.
5. Parallel connection - series connection
6. the filament - the glass bulb - the base of the light bulb.
7. effort - resistance

(B) 1. first 2. solar
3. sand. 4. argon.
5. third 6. two
7. electric burns. 8. = 10 cm.

2. (A) 1. (✗) 2. (✗) 3. (✓)
4. (✓) 5. (✗) 6. (✗)

(B) 1. The effort force is equal to the resistance force.
2. This part of your body will expose to electric burn.
3. The solar eclipse occurs.

(C) 1. ① Battery.
② Electric bulb.
③ Switch.
④ Electric wire.
2. a. closed 3. b. opened.

3. (A) 1. Penumbra. 2. Fulcrum.
3. The law of levers. 4. Tungsten.
5. Total lunar eclipse.
6. Third class levers.

(B) 1. To prevent turning off all the lamps of the house when one lamp is damaged or turned off.
2. Because the effort arm is longer than the resistance arm.

(C) 1. Crowbar. 2. Hockey bat.
3. Phosphoric material.
4. Do not place several connections in the same socket.

4. (A) 1. c. red. 2. c. electric fire.
3. b. Mercury vapour.
4. c. retina 5. c. water pump.
6. c. both (a) and (b).

(B) Effort force × its arm = Resistance force × its arm
$500 \times 20 = 200 \times$ its arm
$\therefore$ Resistance arm $= \frac{500 \times 20}{200} = 50$ cm.
- This lever doesn't save effort because the force arm is shorter than the resistance arm.

(C) 1. d 2. a 3. b 4. c

(D) 1. Lunar eclipse. 2. Umbra.
3. Penumbra.
4. Partial lunar eclipse occurs.

Additional questions

(A) 1. The plant cannot be fixed in the soil and also the root cannot absorb water and mineral salts that are necessary for photosynthesis process.
2. Water cannot transport from the soil to the root hairs, so the plant will wilt and die.

(B) 1. photosynthesis 2. epidermis.



14 Menofia Governorate

1. (A) 1. crowbar - seesaw.
2. Moon - Earth
3. the strength of the electric current that passes through the human body - the time taken by the electric current to pass through.
4. nutcracker - manual broom

(B) 1. It protects the filament from burning when it heats up and increases its lifetime.
2. To connect the lamp to the electric circuit.

2. (A) 1. First class lever.
2. Second class lever.
3. Phosphoric material.
4. Partial lunar eclipse.

(B) 1. Because the Earth has a great size relative to the Moon, so it always blocks all sunlight when it comes between the Sun and the Moon on the same straight line.
2. Because the effort arm is always shorter than the resistance arm, so the effort force is always larger than the resistance force.

3. (A) 1. a. aluminium.
2. a. nutcracker.
3. a. first
4. c. remains constant.

(B) 1. Total lunar eclipse occurs.
2. The eye retina will be harmed and blindness may occur.

4. (A) 1. (✗) 2. (✓) 3. (✓) 4. (✓)

(B) Effort force × its arm = Resistance force × its arm

$500 \times 20 = 200 \times$ its arm

$\therefore$ Resistance arm $= \frac{500 \times 20}{200} = 50$ cm.

(C) ① Argon gas.
② Tungsten filament.
③ Glass bulb.
④ Base of the light bulb.

Additional questions

(A) 1. The stoma cannot be opened or closed.
2. The plant cannot make photosynthesis process due to the absence of light.

(B) 1. c. losing 2. b. root hairs.

15 Gharbia Governorate

1. (A) 1. first
2. closed
3. the shadow
4. Tweezers

(B) 1. Because it heats up and emits light when the electric current passes through it.
2. Because in the second levers, the effort arm is always longer than the resistance arm.

2. (A) 1. Retina.
2. Electric insulators.
3. Third class lever.
4. Electric burns.

(B) Effort force × its arm = Resistance force × its arm

$40 \times 5 =$ Resistance force $\times 25$

$\therefore$ Resistance force (the weight) $= \frac{40 \times 5}{25} = 8$ Newton.

3. (A) 1. a. Archimedes.
2. c. no lunar
3. b. Mercury vapour.
4. c. wheelbarrow.

(B) 1. The solar eclipse occurs.
2. The effort force and the resistance force are equal and this lever doesn't conserve effort.

4. (A) 1. hockey but 2. red
3. penumbra.
4. The base of the light bulb

(B) 1. parallel.
2. doesn't change - there are branching routes for the electric current to pass through the circuit.

Additional questions

(A) 1. (✗) 2. (✓)

(B) 1. Photosynthesis process.
2. Light energy.

16 Dakahlia Governorate

1. (A) 1. The force arm – the resistance arm.
2. increasing force – increasing distance.
3. Direct injuries – indirect injuries.
4. closed.
5. argon – mercury vapour.
6. Moon – Earth – three.

(B) 1. Second class lever.
2. Yes, it conserves effort.
3. The force arm is longer than the resistance arm.
4. Nutcraker.

2. (A) 1. Electric burns.
2. Electric insulators.
3. Parallel connection.
4. Retina.
5. Penumbra.
6. The law of levers.

(B) 1. The filament will burn when it heats up.
2. Partial lunar eclipse occurs.
3. The fire will increase and could harm the rescuers as water is a good conductor of electricity.

3. (A) 1. (✓) 2. (✗) 3. (✗)
4. (✗) 5. (✓) 6. (✓)

(B) 1. Because they are important in other things as :
- Increasing distance.
- Increasing speed.
- Avoid dangers.
Accuracy in performance.
2. To prevent turning off all the lamps of the house when one lamp is damaged or turned off.
3. Because the whole Moon enters the shadow area (umbra) of the Earth.
4. Because it has high melting point that prevents the melting of the filament at high temperatures.

4. (A) 1. c. Archimedes 2. a. plastic.
3. b. annular 4. a. first
5. b. 14^{th} 6. a. light

(B) 1. series.
2. The lamps remain lighting as iron (coin) is a good conductor of electricity.
3. The other two lamps are turned off.

Additional questions

(A) 1. To make their own food.
2. To open and close the stoma.

(B) 1. transpiration.
2. shoot system.

17 Ismailia Governorate

1. (A) 1. a. first 2. b. Iron
3. c. lunar non-eclipse.
4. b. Nutcracker

(B) ① Glass bulb.
② Tungsten filament.
③ Argon gas.
④ Base of the light bulb.

(C) Effort force × its arm = Resistance force × its arm
$500 \times 20 = 200 \times$ its arm
$\therefore$ Resistance arm $= \frac{500 \times 20}{200} = 50$ cm.

2. (A) 1. force – resistance
2. argon – mercury vapour.
3. first – third class lever

(B) 1. a. Series connection.
b. Parallel connection.
2. Circuit (5).
3. To prevent turning off all the lamps of the house when one lamp is damaged or turned off.

(C) 1. Increasing speed.
2. Increasing distance.

3. (A) 1. Because the effort arm is always longer than the resistance arm, so the effort force is always smaller than the resistance force.
2. Because the Sun emits harmful rays to the eye such as ultraviolet rays (UV) and infrared rays that may cause blindness within few seconds.





(B) 1. Fulcrum. 2. Electric burns.
3. Total lunar eclipse. 4. Lever.

(C) 1. Solar eclipse.
2. ⓐ Sun. ⓑ Moon. ⓒ Earth.

4. (A) 1. The effort force is equal to the resistance force and this lever doesn't conserve effort.
2. Partial lunar eclipse occurs.

(B) 1. (✗) 2. (✓) 3. (✓) 4. (✗)

(C) 1. Do not place several connections in the same socket.
2. Do not play with the electric connections.

Additional questions

(A) 1. d. photosynthesis
2. a. two

(B) 1. Root hairs.
2. Light energy.

18 Suez Governorate

1. (A) 1. effort force – fulcrum.
2. second – first
3. battery – electric wires.
4. argon 5. electric current

(B) 1. (✓) 2. (✗) 3. (✓) 4. (✓)

2. (A) 1. Fulcrum. 2. Series connection.
3. Electric lamp. 4. Electric insulators.

(B) 1. To avoid occurrence of electric fires.
2. Because the effort arm is always longer than the resistance arm, so the effort force is always smaller than the resistance force.

3. (A) 1. c. copper.
2. a. annular eclipse.
3. a. decreasing speed.
4. c. faint.

(B) Effort force × its arm = Resistance force × its arm
200 × 5 = 100 × its arm
∴ Resistance arm = $\frac{200 \times 5}{100}$ = 10 cm.

4. (A) 1. first
2. Lunar eclipse

(B)

P.O.C	Solar eclipse	Lunar eclipse
Reason :	It occurs when the Moon comes between Earth and Sun on one straight line.	It occurs when Earth comes between Moon and Sun on one straight line.
Time of occurrence :	It is seen at morning only.	It is seen at night only.

(C) ① Glass bulb.
② Tungsten filament.
③ Argon gas
④ Base of the light bulb.

Additional questions

(A) 1. It is the transmission of water molecules through semi-permeable membrane from an area with high concentration of water to an area of low concentration of water.
2. It is a process by which the cell membrane of the root hair allows some types of salts to pass according to the plant's need.

(B) The stoma cannot be opened or closed.

19 Kafr El-Sheikh Governorate

1. (A) 1. c. 2 2. b. tungsten.
3. a. first 4. a. in the morning.

(B) 1. Electric circuit.
2. The circuit will be open, so the electric current does not pass through the circuit and the lamp doesn't light.

2. (A) 1. b 2. c 3. d 4. a

(B) 1. Electric conductors.
2. Indirect injuries.

3. (A) 1. To protect the filament from burning, so the lifetime of the filament increases.
2. Because the effort arm is always longer than the resistance arm, so the effort force is always smaller than the resistance force.

(B) 1. parallel. 2. Lunar
3. less bright 4. argon

4. (A) 1. (✗) 2. (✓) 3. (✗) 4. (✓)
(B) Earth – red.

Additional questions

(A) 1. Stoma.
2. Root system.

(B) – It fixes the plant in the soil.
– It absorbs water and mineral salts from the soil.

20 Behiera Governorate

1. (A) 1. Moon - Earth
2. effort force - resistance force.
3. third - effort force
4. light bulbs - fluorescent lamps.

(B) 1. Because it has high melting point that prevents the melting of the filament at high temperatures.
2. Because in these levers, we use a small force to make a great effort.

2. (A) 1. effort force, resistance force and fulcrum.
2. phosphoric material.
3. second
4. electric shock.

(B) 1. It protects the filament from burning when it heats up and increases its lifetime.
2. To protect the eye retina from the harmful rays as ultraviolet (UV) and infrared rays that emit from the Sun and may cause blindness within few minutes.

3. (A) 1. First class lever.
2. Total lunar eclipse.
3. The law of levers.
4. Lever.

(B) 1. The fluorescent lamp can't be connected to the electricity.
2. The lever saves effort.

4. (A) 1. d. red.
2. a. coal holder.
3. c. Mercury vapour.
4. a. Newton.

(B) Effort force × its arm = Resistance force × its arm
$400 \times 20 = 200 \times 20$
$8000 \neq 4000$

So, this lever isn't in state of balance because the result of effort force × its arm is not equal to the result of resistance × its arm

Additional questions

(A) 1. (✗) 2. (✓)
(B) To open and close the stoma.

21 Fayoum Governorate

1. (A) 1. Lunar eclipse - Earth
2. second class - third class
3. first - third
4. tungsten - melting point.

(B) Effort force × its arm = Resistance force × its arm
Effort force × 10 = 200 × 20
∴ Effort (affecting) force = $\frac{200 \times 20}{10}$
= 400 Newton.

2. (A) 1. light 2. second
3. bad 4. Fulcrum

(B) 1. When the temperature of heater increases, it may burn the furniture and rugs causing electric fires.
2. Partial lunar eclipse occurs.

3. (A) 1. c. argon 2. a. No lunar
3. d. Copper 4. b. parallel.

(B) (1) Electric bulb. (2) Electric wire.
(3) Battery. (4) Connecting wire.

4. (A) 1. Lever.
2. Total lunar eclipse.
3. Electric burns.
4. First class lever.

PART 3

(B) 1. Because the sunlight passes in straight lines and if a dark object like the Moon in solar eclipse or Earth in lunar eclipse obstruct it, a shadow (umbra) is formed.
2. To connect the lamp to the electric circuit.

Additional questions

(A) Pith → Xylem layer → Endodermis layer → Cortex layer → Epidermis layer.

(B) 1. They absorb water and mineral salts from the soil.
2. It regulates the passage of water to the xylem (wood tissue).

22 El-Minia Governorate

1. (A) 1. Newton 2. second
3. Thomas Alpha Edison.
4. twice

(B) Effort force × its arm = Resistance force × its arm.
500 × 20 = 200 × its arm
∴ Resistance arm (Location) = $\frac{500 \times 20}{200}$ = 50 cm.

2. (A) 1. Resistance force.
2. First class Lever.
3. Battery.
4. Solar eclipse.

(B) 1. Light bulb.
2. (1) Glass bulb.
(2) Argon gas.
(3) Tungsten filament.
(4) Base of the light bulb.

3. (A) 1. parallel 2. first
3. umbra 4. tungsten.

(B) 1. Because the effort arm is always shorter than the resistance arm, so the effort force is always larger than the resistance force.
2. To protect our eyes from ultraviolet and infrared rays coming from the Sun that may cause blindness within few seconds.

4. (A) 1. b. Penumbra
2. b. Glass bulb
3. b. shorter
4. c. resistance force

(B) 1. Series
2. Parallel
3. parallel - when one or more lamps burn out, the other lamps don't turn off.

Additional questions

(A) Water cannot transport from the soil to the root hairs so the plant will wilt and die.

(B) 1. To open and close the stoma.
2. To make their own food.

23 Assuit Governorate

1. 1. first class lever.
2. Moon - Earth.
3. conductors - insulators.
4. third

2. (A) 1. (✓)
2. (✗) The tungsten filament of the light bulb ...
3. (✗) ... , the lever does not save effort.
4. (✗) ... in the middle of lunar month.
5. (✓)

(B) 1. The fire will increase and could harm the rescuers as water is a good conductor of electricity.
2. When one of the lamps damaged or turned off, all the other lamps in the house will turn off.

3. (A) 1. Parallel connection.
2. Partial lunar eclipse.
3. Electric burns.
4. Third class lever.

(B) 1. Because the Sun emits harmful rays to the eye such as ultraviolet ray (UV) and infrared rays that may cause blindness within few seconds.

2. Because sometimes in the 1st class levers, the effort arm is longer than the resistance arm.

4. (A) 1. Light bulb.
2. (1) Tungsten filament.
(2) Glass bulb.
(3) Base of the light bulb.

(B) Effort force × Its arm = Resistance force × Its arm
50 × 20 = Resistance force × 5
$\therefore$ Resistance force = $\frac{50 \times 20}{5}$
= 200 Newton

Additional questions

(A) 1. root hairs 2. stomata - lower
(B) To make their own food.

24 Sohag Governorate

1. (A) 1. effort force - resistance force.
2. first
3. effort force × its arm = resistance force × its arm.
4. argon

(B) Effort force × its arm = Resistance force × its arm
500 × 20 = 200 × its arm
$\therefore$ Resistance arm = $\frac{500 \times 20}{200}$
= 50 cm.

2. (A) 1. (✓) 2. (✗) ... in parallel.
3. (✓) 4. (✓)

(B) When one of the lamps damaged or turned off, all the other lamps in the house will turn off.

(C) 1. Do not play with the electric connections.
2. Do not insert a metallic object in the socket.

3. (A) 1. Fulcrum. 2. Electric lamp.
3. Third class levers.
4. Electric conductors.
5. Partial lunar eclipse.
6. Parallel connection.

(B) 1. Because the effort arm is longer than the resistance arm, so the effort force is smaller than the resistance force.
2. Because the Sun emits harmful rays to the eye such as ultraviolet rays (UV) and infrared rays that may cause blindness within few seconds.
3. To prevent turning off all lamps when one or more lamps burn out.

4. (A) 1. a. first
2. c. copper.
3. a. Fishing hook

(B) **Solar eclipse :** Its duration doesn't exceed seven minutes and few seconds.
Lunar eclipse : Its duration may last for more than two hours.

(C) (1) Glass bulb.
(2) Base of the light bulb.
(3) Tungsten filament.
(4) Argon gas.

Additional questions

(A) 1. Root system. 2. Stoma.
(B) To make their own food.

25 South Sinai Governorate

1. (A) 1. effort force - resistance force
2. wood - plastic. 3. battery.
4. Moon - Earth 5. electric burns
6. third class

(B) 1. Because water is a good conductor of electricity, so it increases fires and could harm the rescuers.
2. Because they are important in other things as :
• Increasing distance.
• Increasing speed.
• Avoid dangers.
• Accuracy in performance.

2. (A) 1. b. Wheelbarrow 2. c. remains as it is.
3. c. iron. 4. a. Crowbar
5. b. light 6. a. less than

(B) 1. Do not play with the electric connections.
2. Do not place several connections in the same socket.

(C) (1) Sun. (2) Moon.
(3) Umbra. (4) Earth.



3. (A) 1. (✗) The fluorescent lamp ...
2. (✗) ... is a second ...
3. (✓) 4. (✓)
5. (✗) ... the force less than ...
6. (✗) In the first class ...

(B)

Total lunar eclipse	Partial lunar eclipse
It is the lunar eclipse which occurs when the whole Moon enters the shadow area (umbra) of the Earth.	It is the lunar eclipse which occurs when a part of the Moon enters the shadow area (umbra) of the Earth.

(C) 1. e 2. c 3. d 4. a

4. (A) 1. Second class levers.
2. Filament.
3. Series connection.
4. Fulcrum. 5. Electric shock.
6. First class levers.

(B) Effort force × its arm = Resistance force × its arm

48 × 4 = Resistance force × 6

$\therefore$ Resistance force $= \frac{48 \times 4}{6}$

$= 32$ Newton.

(C) 1. When one of the lamps damaged or turned off, all the other lamps in decorative lights will turn off.
2. The Moon light turns to be faint without being eclipsed which is known as lunar non-eclipse.
3. The filament will burn when it heats up
4. When the temperature of the heater increases, it may burn the furniture and rugs causing fires.

Additional questions

(A) 1. (✗) 2. (✓)

(B) 1. The plant cannot make photosynthesis process due to the absence of light.
2. The root hairs cannot control passing of some types of salts according to the plant's need.



1 Cairo Governorate — Cairo Educational Directorate

Answer the following questions :

1 [A] Complete the following statements :

1. The scissors are considered .... class lever, while the manual broom is .... class lever.
2. The filament of light bulb is made of ....
3. The cell membrane has the .... property which allows only some salts to pass through.
4. The electric overload is the reason of occurrence of ....
5. Materials that allow the flow of electricity through them is called ....

[B] Give reasons for :

1. All the second class levers always conserve the effort.

   ....

2. Occurrence of the solar eclipse phenomenon.

   ....

---

2 [A] Write the scientific term for the following statements :

1. A rigid bar that rotates around a fulcrum and is affected by force and resistance. (..................)
2. Losing of excess water in the shape of water vapour from the leaves or from other green parts. (..................)
3. A phenomenon occurs when the Earth comes between the Moon and the Sun on the same straight line. (..................)

[B] A first class lever is affected by force equals to 400 Newton and the resistance of 200 Newton if the length of resistance arm is 20 cm. What is the length of the force arm ?

....

....

---

3 [A] Choose the correct answer :

1. The phenomenon of the lunar eclipse occurs in the .... of the lunar month.

   a. end b. middle c. beginning

2. Stomata are widely spread on the ....
   a. stem. b. upper surface of the leaf.
   c. lower surface of the leaf.
3. Electric wires are covered with ....
   a. copper. b. plastic. c. aluminium.
4. The root hairs absorb most of soil water by ....
   a. transpiration. b. osmosis. c. selective permeability.
5. When the resistance is between the effort and the fulcrum it will be .... class lever.
   a. first b. second c. third

[B] What happens in the following cases ... ?

1. There is no glass bulb in the light bulb.
   ....
2. When the whole Moon enters the semi-shaded area of the Earth.
   ....

---

4 [A] Put (✓) in front of correct statements and (✗) in front of incorrect one :

1. Lamps in the house are connected in series. ( )
2. The duration of solar eclipse does not exceed seven minutes and few seconds. ( )
3. From levers functions is decreasing speed. ( )
4. Rubber is from insulators of electricity. ( )
5. Green plant needs light, water and carbon dioxide gas to make photosynthesis process by root system. ( )
6. The fluorescent lamp contains inert argon gas and a little amount of mercury vapour. ( )

[B] Define :

Partial solar eclipse.

....

....

2 Giza Governorate — The Educational Directorate

Answer the following questions :

1 [A] Choose the correct answer :

1. From the functions of levers is ....
   a. decreasing the speed. b. saving effort. c. decreasing distance.

2. Which of the following gases is found in the fluorescent lamp but not in the light bulb ? ....
   a. Argon gas. b. Neon gas. c. Mercury vapour.
3. Solar eclipse occurs when the Earth, Moon and the Sun are nearly on one straight line with ....
   a. Moon is between Earth and Sun.
   b. Earth is between Moon and Sun.
   c. Sun is between Earth and Moon.
4. From the examples of electric insulators is ....
   a. copper. b. wood. c. iron.
5. Losing of water in the form of water vapour from plant is called .... process.
   a. osmosis b. transpiration c. absorption

[B] Answer the following :

1. **What happens if :** The root hair doesn't secrete a sticky substance.
   ....
2. **The exerted force of the first class lever equals 500 Newton and the length of its arm equals 20 cm. and is affected by a resistance with value 200 Newton. Calculate the arm of the resistance.**
   ....
   ....

---

2 **[A] Complete the following statements :**

1. The seesaw is an example of the .... class levers.
2. Fluorescent lamp is filled with inert .... gas.
3. Lunar eclipse phenomenon occurs when .... is located between Sun and Moon.
4. Water is transmitted from the soil to the root hair by .... feature.

[B] Give reasons :

1. The second class levers always save effort.
   ....
2. Special glasses are used to observe the solar eclipse.
   ....

3 **[A] Write the scientific term :**

1. A fixed point on which a rigid bar rotates around. (..................)
2. Materials that allow the flow of electric current through them. (..................)
3. Fires occur due to the increase in temperature of electric device. (..................)
4. A phenomenon occurs when the Moon comes in an orbit higher from the Earth. (..................)

[B] Mention one function for each of the following :

1. Root system.
   ....
2. Tungsten filament.
   ....

---

4 **[A] Put (✓) in front of correct statements and (✗) in front of wrong one :**

1. The third class levers save effort. (   )
2. While connecting the lamps in parallel, the lamps are connected one after the other. (   )
3. The stoma in plant is surrounded by two guard cells. (   )
4. The duration of solar eclipse doesn't exceed seven minutes and few seconds. (   )

[B] The opposite figure represents the structure of electric lamp, write the labels :

① ....
② ....
③ ....

①
②
③

3 Alexandria Governorate — The Educational Directorate

Answer the following questions :

1 **[A] Complete the following statements :**

1. The lever saves effort when its force arm is .... than the resistance arm, and the force is .... than the resistance.
2. A little amount of .... is added to argon gas inside the fluorescent lamp, and the inner surface is covered with .... material.
3. From the bad conductors of electricity are .... and ....

[B] What is the importance of the following :

1. The thin walls of the root hairs.

....

2. The argon gas inside the glass bulb of the electric lamp.

....

---

2 **[A] Choose the right answer :**

1. The total lunar eclipse happens when ....
   a. the whole Moon enters the shadow area of the Earth.
   b. a part of the Moon enters the shadow of the Earth.
   c. the whole Moon enters the semi-shaded area of the Earth.
   d. the Moon lies between the Sun and the Earth.
2. Water is not used in putting out the fires of electricity, because ....
   a. water decreases the fire.
   b. water contains minerals that disconnect electric current.
   c. impure water is a bad conductor of electricity.
   d. impure water is a good conductor of electricity.
3. The root hair secretes .... substance that helps in attracting water.
   a. solid   b. sticky   c. soft   d. smooth

[B] What happens in the following with mentioning the reasons .... ?

1. A lamp of a group of lamps connected in electric circuit in series was burnt.

....

....

2. Looking at the Sun during its eclipse without special glasses.

....

....

---

3 **[A] Give reasons for the following :**

1. The filament of the electric lamp is made up of tungsten.

....

2. The concentration of the solution inside the sap vacuole of the plant is higher than the concentration of the soil solution.

....

3. The crowbar is a lever of the first class.

....

4. The electric current continues passing through a closed electric circuit if the switch is replaced by a piece of metal.

....

[B] Look at the figure that represents the phenomenon of the solar eclipse then, answer the following :

1. When does this phenomenon happen ? ....
2. The reigon number ① is known as .... and the type of eclipse is ....
3. The reigon number ② is known as .... and the type of eclipse is ....

---

4 [A] Write the scientific term for the following :

1. A type of levers at which the force lies between the resistance and the fulcrum. (....................)
2. Two cells that surround the stoma in the plant leaf. (....................)
3. A type of telescopes in which the mirrors are used to collect light. (....................)

[B] Correct the underlined parts in the following :

1. The nutcracker is a lever of the **first** class. (....................)
2. The human body is a good conductor of electricity because it contains **gases**. (....................)

[C] A third class lever of 200 Newton force and its arm is 5 cm. affect on a resistance of 100 Newton, calculate the length of the resistance arm that makes the lever balanced.

....

....

4 Kalyoubia Governorate — The Educational Directorate

Answer the following questions :

1 [A] Choose the correct answer :

1. The force arm is sometimes equal to the resistance arm in .... class levers.
   a. first b. second c. third d. first and third
2. The glass tube of the fluorescent lamp contains inert .... gas.
   a. helium b. argon c. neon d. oxygen
3. In the plants, the stomata are widely spread on the ....
   a. lower surface of the leaf. b. xylem tissue.
   c. root. d. stem.

4. .... is a bad conductor of electricity.
   a. Rubber b. Aluminium c. Copper d. Iron
5. The lunar eclipse phenomenon occurs ....
   a. at the end of the lunar month.
   b. in the middle of the lunar month.
   c. at the beginning of the lunar month.
   d. in the first quarter of the lunar month.

[B] In a second class lever, the effort force is 50 Newton and the length of the force arm is 20 cm. If the value of the resistance arm for this lever is 5 cm., calculate the value of the resistance. (Write the mathematical relation).

....

....

---

2 [A] Give reasons :

1. The second class levers always conserve effort.
   ....
2. Root hair secretes a sticky substance.
   ....
3. The light bulbs are connected in parallel in the house.
   ....
4. Each stoma is surrounded by two guard cells.
   ....

[B] What is meant by ... ?

1. Transpiration process.
   ....
   ....
2. Lever.
   ....
3. The electric shock.
   ....
4. Selective permeability.
   ....

---

3 [A] Write the scientific term :

1. The energy needed by plant to make its own food. (....................)
2. It is a fixed point, where the bar rotates around. (....................)
3. A way of connecting the electric lamps in which all the lamps are turned off when one of them burns out. (....................)

[B] The opposite figure represents an astronomical phenomenon :

1. What is the name of this phenomenon ?

....

2. Label the figure :

① ....

② ....

③ ....

---

4 [A] What happens when ... ?

1. The root of the plant whose white flower is submerged in the red eosin solution.

....

2. The electric lamp contains an atmospheric air from inside.

....

3. The Earth, the Moon and the Sun are on one straight line with the Moon in the middle.

....

4. The effort force is between the fulcrum and the resistance force.

....

[B] 1. Compare between solar eclipse and lunar eclipse according to :

① The reason of occurrence.

....

....

② The time of occurrence.

....

....

2. Mention only two precautions when dealing with electricity.

....

....

3. What is the function of endodermis in the root system ?

....

5 El-Sharkia Governorate — The Educational Directorate

Answer the following questions :

1 [A] Complete the following statements :

1. When the arm of the force is shorter than the arm of the resistance so, ... is larger than .... and thus it doesn't save effort.
2. Root hairs wall is .... and they absorb water from the soil by ....
3. .... and .... are examples of materials that are electric conductors.

[B] What happens when ... ?

1. The Moon, the Sun and the Earth are nearly on the straight line with the Moon in the middle.

   ....

2. A man touches uncovered wire carrying current.

   ....

---

2 [A] Correct the underlined word :

1. Nutcracker is from the **first** class levers. (..................)
2. Plant stomata are surrounded by two **woody** cells. (..................)
3. Fires resulted from electricity are extinguished by **water**. (..................)

[B] Give reasons for the following :

1. The third class levers always don't conserve effort.

   ....

   ....

2. Annular lunar eclipse doesn't occur.

   ....

   ....

---

3 [A] Write the scientific term :

1. A tool used in converting the electric energy to light energy. (..................)
2. Fires occur as a result of the increase in the temperature of the electric machines. (..................)
3. It occurs to the Moon when it completely enters the shadow area of the Earth. (..................)
4. The fixed point of a rigid bar. (..................)
5. A part of the plant that penetrates through the soil particles and fixes it. (..................)

[B] The force arm length of a third class lever is 5 cm. and the length of the arm of the resistance is 15 cm. if the resistance has a value of 300 Newton. Calculate the value of the affecting force.

....

....

4 [A] Choose the correct answer :

1. Which gas of the following gases is found in the fluorescent lamp but not in the electric bulb ? ....
   a. Neon. b. Argon. c. Mercury vapour. d. Air.
2. When an electric lamp which is connected in series with others burns, ...
   a. the light intensity decreases.
   b. the light intensity increases.
   c. all lamps turn off. d. no correct answer.
3. Plant loses water in form of water vapour in ....
   a. photosynthesis. b. transpiration.
   c. evaporation. d. selective permeability.
4 The duration of lunar eclipse is .... that of the solar eclipse.
   a. longer than b. shorter than c. equal to d. twice

[B] Mention one function for each of the following :

1. Hockey bat.
   ....
2. Mirrors in Hubble telescope.
   ....
3. The base of light bulb.
   ....

6 Menofia Governorate — The Educational Directorate

Answer the following questions :

1 [A] Complete the following statements by suitable words :

1. The partial solar eclipse is formed in the .... area of the Moon while the total solar eclipse is formed in the .... area of the Moon.
2. The filament of the light bulb is made of .... and that is because its .... is high.
3. Root hair wall is .... and it absorbs water from the soil by ....

4. The fluorescent lamp contains the inert .... gas and the inner tube surface is covered with a .... material.
5. Some levers allow the increase in the speed of objects they inflict on as in ....

[B] Write a scientific explanation to each of the following :

1. In houses the electric lamps are connected in parallel.
....
2. Water cannot be used to put out the fire resulting from electricity.
....

---

2 [A] Write the scientific term for each of the following statements :

1. Levers in which the force is found between resistance and fulcrum. (..................)
2. One of the dangers of electricity causing damage to the tissues of the body. (..................)
3. A way of connection for the electric lamps to decrease the luminous intensity as their number increases. (..................)
4. A lever used to avoid dangers and protect us from heat. (..................)
5. A composition of cells in the root of the plant which regulates water crossing into the xylem. (..................)

[B] 1. **What is the name of the astronomical phenomenon show in the opposite figure ?**

Sun
Earth
(a)
(b)
Moon

....

2. **What happens when .... ?**
① The whole Moon enters in the area (a).
....
② The whole Moon enters in the area (b).
....

---

3 [A] Choose the correct answer :

1. The first simple machines man invented were ....
a. levers. b. bikes. c. planes. d. car machines.
2. Stomata are widely spread on the ....
a. root. b. stem.
c. upper surface of the leaf. d. lower surface of the leaf.

3. The .... is considered from the first class levers.

a. fish hook b. seesaw c. nutcracker d. manual broom

4. The duration of the solar eclipse does not exceed ....

a. 5 minutes. b. 6 minutes.

c. 7 seconds and few minutes. d. 7 minutes and few seconds.

5. .... is one of the electric conductors.

a. Plastic b. Wood c. Rubber d. Iron

[B] What would happen in each of the following cases .... ?

1. The cone shadow of the Moon does not reach the Earth.

....

2. The two metallic pieces are not found in the base of the light bulb.

....

3. The force arm is longer than the resistance arm.

....

---

4 [A] Correct the underlined words in each of the following statements :

1. The crowbar is a **second** class lever. (..................)
2. **Solar eclipse** does not require precautions, warnings or special devices to look at. (..................)
3. The electric lamp converts the electric energy to the **kinetic** energy. (..................)
4. The **photosynthesis** process helps in raising water and dissolved salts to the top of the plant. (..................)
5. In the **first** class levers, the resistance is between the effort force and the fulcrum. (..................)

[B] The force affecting a first class lever equals 500 Newton and the length of its arm is 10 cm., if the value of the resistance equals 200 Newton and the length of the resistance arm is 20 cm.

1. Is this lever balanced ? why ?

....

....

2. If the lever is not balanced, what is the length of the resistance arm required for keeping the balance ?

....

7 El-Gharbia Governorate — The Educational Directorate

Answer the following questions :

1 [A] Complete the following statements :

1. Lunar eclipse occurs when .... comes between the Sun and ....
2. The fluorescent lamp consists of glass tube, ... and ....
3. The glass bulb of the light bulb is filled with .... gas instead of ....
4. From examples of levers that are used to avoid dangers is ....
5. Lever is a rigid bar that rotates around a fixed point called .... and is affected by force and ....

[B] What happens when .... ?

1. The root hair of the plant secretes a sticky substance.

   ....

2. We look to the Sun with naked eye during the total solar eclipse.

   ....

3. The cone shadow doesn't reach Earth as the Moon comes in an orbit higher from Earth during its rotation around it.

   ....

---

2 [A] Write the scientific term :

1. Tiny holes that are widely spread on the lower surface of the plant leaves and the plant loses excess water through them. (..................)
2. An astronomical phenomenon occurs when part of the Moon enters the shadow area of Earth. (..................)
3. Materials close the electric circuit as they allow the electric current to flow through them. (..................)
4. Levers that have the resistance between the fulcrum and the effort force. (..................)
5. It carries the lamp in upright position and connects the lamp to the electric circuit through two pieces of lead. (..................)

[B] A force of 500 Newton affects a first class lever and its arm equals 10 cm. If the resistance equals 200 Newton and the length of the resistance arm is 20 cm. Discover is the lever balanced or not and why ?

....

....

3 [A] Choose the correct answer :

1. The cell membrane of plant root hairs is characterized by .... property.
   a. selective permeability b. photosynthesis c. transpiration
2. The duration of the solar eclipse ....
   a. may last for more than two hours.
   b. doesn't exceed seven minutes and few seconds.
   c. always occurs at night.
3. The lever conserves effort when ....
   a. the arm of force is longer than the arm of resistance.
   b. the arm of force is shorter than the arm of resistance.
   c. the arm of force equals the arm of resistance.
4. The operation of more than one machine in the same socket leads to ....
   a. electric shock. b. increasing the electric load.
   c. all the previous.

[B] Give reasons for each of the following :

1. We can't see the Sun completely during the total solar eclipse.
   ....
2. The force and the resistance can be equal only in the first class levers.
   ....
3. The filament of the light bulb is made of a coiled thin wire of tungsten.
   ....

4 [A] Correct the underlined words in the following :

1. Lunar eclipse phenomenon occurs in the **end** of the lunar month. (..................)
2. **Air** flows from the soil into the root hair by osmosis. (..................)
3. **Second** class levers always don't conserve effort. (..................)
4. **Annular** solar eclipse occurs in the semi-shaded area of the Moon. (..................)
5. Although crowbar is a **third** class lever, it conserves effort. (..................)

[B] Look at the opposite two figures (a & b), then answer in spaces below each one as required.

	Figure (a)	Figure (b)
	(1) (2) (3)	Lamp (1) Lamp (2) Lamp (3)
1. What is the way of connection in each circuit ?	....	....
2. What happens when the light bulb number (2) in each circuit burns out ?	....	....

8 Dakhlia Governorate — The Educational Directorate

Answer the following questions :

1 **[A] Complete the following statements :**

1. From examples of the first class levers are .... and ....
2. The harms resulting from an electric shock depend on .... and ....
3. The root hair secretes .... substance that helps in root .... through the soil particles.
4. If we are in a place where the Moon shadow fall on the Earth thus we can see ....

[B] What happens if .... ?

1. A light bulb connected in series turned off.

....

2. The whole Moon enters the semi-shaded area of the Earth.

....

3. We not disconnect the electric current from the electric machines that generate heat after using.

....

2 **[A] Write the scientific term for each of the following :**

1. Small holes found in the plant leaves. (..................)
2. An inert gas fill the bulb vacuum. (..................)
3. A phenomena occurs when the Earth comes between the Moon and the Sun and they are all on one straight line. (..................)

[B] Give reasons for the following :

1. Water isn't used to put out the electric fire.

....

2. The third class levers always don't conserve effort.

....

3. The filament of the light bulb is made of tungsten.

....

3 **[A] Choose the correct answer :**

1. All of the following are third class levers except ....
   a. wheelbarrow. b. fish hook.
   c. manual broom. d. sweet holder.
2. When we connect an electric bulb in parallel with another electric bulbs, the lighting of these bulbs will ....
   a. decrease. b. increase.
   c. turn off. d. remain constant.
3. The bio-process where the plant loses excess water in the form of vapour is ....
   a. respiration. b. photosynthesis.
   c. selective permeability. d. transpiration.
4. From the importance of the levers ....
   a. decreasing force. b. increasing distance.
   c. decreasing speed. d. not accuracy in performance.

[B] The force affecting on a second class lever equals 200 Newton and the length of its arm is 50 cm. and a resistance with a value of 1000 Newton, calculate the value of the arm of resistance ?

....

....

---

4 [A] Put (✓) or (✗) in front of each statement :

1. The fluorescent lamp contains one filament of tungsten. ( )
2. When we are in the semi-shadow area of the Moon we watch the annular eclipse. ( )
3. If the force of resistance is between the force of effort and fulcrum the lever will be from the second class levers. ( )
4. The salt concentration inside root hair vacuole is larger than salt concentration inside the soil. ( )
5. If the arm of force is longer than the arm of resistance then the lever conserves the effort. ( )
6. We can look directly at the Sun during solar eclipse and our eyes will not harm. ( )

[B] Write the place and the function of the guard cells :

The place : ....

The function : ....

9 Ismailia Governorate — The Educational Directorate

Answer the following questions :

1 [A] Complete the following statements with suitable words :

1. The lever is a .... bar that rotates around a fixed point called ....
2. The filament of the light bulb is made of .... because its .... point is high.
3. Metallic materials are considered as .... to electricity, while glass and rubber are .... materials to electricity.
4. The lunar .... is formed when the .... is located between the Sun and the Moon.
5. Root hair secretes .... substance that helps in root .... through soil particles.

[B] What happens if .... ? :

1. Touching a naked wire where an electric current passes through, while touching the ground.
   ....
2. The force arm and the resistance arm in a lever are equal.
   ....
3. The direct observation of a person to the solar eclipse by the naked eye.
   ....

---

2 [A] Put (✓) or (✗) and correct what is wrong :

1. In the second class lever the resistance is between the force and the fulcrum. ( )
   ....
2. In the electric lamp, the electric energy is converted into kinetic energy. ( )
   ....
3. Plant loses water in the form of water vapour in photosynthesis process. ( )
   ....
4. The fish hook is a first class lever. ( )
   ....

[B] Calculate the length of the resistance arm, that regains the balance of the lever, if you know that the length of the force arm is 2 cm., the effort force is 8 N and the resistance is 1 N.

....

....

[C] What is the function of each of the following :

1. The insulating material in electric cables.
   ....
2. The lever in the hockey bat.
   ....

---

3 [A] Write the scientific term for each of the following :

1. A composition of cells which regulates water crossing into a tissue called xylem. (..................)
2. An area where the whole Moon is located, is not considered an eclipse. (..................)
3. A method in which the electric bulbs are connected in branching routes. (..................)

[B] Look at the following figure, then answer :

1. Write the labels :

① ....

② ....

③ ....

2. What is the function of part number ④ ?

....

[C] Give reasons for each of the following :

1. The presence of two guard cells surrounding each stoma in the plant leaf.

....

2. The swelling of the light bulb is filled with argon gas.

....

4 [A] Choose the correct answer :

1. When an electric lamp is burned when it is connected in series with other electric lamps in an electric circuit, the other lamps ....

a. decrease their light intensity. b. increase their light intensity.

c. turn off. d. explode.

2. Which of the following is from the third class levers ? ....

a. The sweet holder. b. The wheelbarrow.

c. The seesaw. d. The scissors.

3. The plant gets the mineral salts through ....

a. osmosis. b. selective permeability.

c. transpiration. d. no correct answer.

4. The annular solar eclipse takes place when the Moon comes in an orbit .... the Earth.

a. higher than b. lower than c. average to d. parallel to

[B] Compare between the solar eclipse and the lunar eclipse in terms of the time of their occurrence :

Point of comparison	Solar eclipse	Lunar eclipse
Time of occurrence	....	....

[C] Correct the underlined words in the following statements :

1. Water is not used to put out the **regular fires**. (....................)
2. Stomata are widely spread on the **upper** surface of the plant leaves. (....................)
3. The lunar eclipse extends for more than two **days**. (....................)

10 Port Said Governorate — The Educational Directorate

Answer the following questions :

1 [A] Complete the following statements :

1. The distance between the force and the fulcrum is known as .... whereas the distance between the fulcrum and the resistance is called ....
2. .... occurs when the whole Moon enters the shadow (umbra) area of the Earth.
3. The fluorescent lamp consists of a glass tube that contains a little of .... and the inner tube surface is covered with a .... material.
4. The scissors are example of the .... class levers.
5. .... solar eclipse occurs when the Moon comes in an orbit higher from the Earth.

[B] What is meant by .... ?

Selective permeability.

....

---

2 [A] Write the scientific term for each of the following :

1. One of the dangers of electricity that results from an electric current passing through the human body. (....................)
2. Plant root cells which regulate water crossing into xylem tissue. (....................)
3. An area that appears between the lighted area and the real shadow area and we can see a part of the light source if we stand in this area. (....................)

[B] A third class lever, the length of its force arm is 50 cm., and the length of its resistance arm is 65 cm., if the affecting resistance has a value of 200 Newton, calculate the value of the affecting force.

....

....

[C] What happens in each of the following cases .... ?

1. When the Moon completely enters the semi-shaded area of the Earth.

   ....

2. There is no osmosis feature in the plant.

   ....

---

3 [A] Choose the correct answer :

1. All of the following are examples of third class levers except ....
   a. seesaw. b. manual broom. c. sweet holder.
2. The duration of the solar eclipse is .... the duration of the lunar eclipse.
   a. equal to b. more than c. less than
3. The .... in plants is responsible for the photosynthesis process.
   a. root system b. shoot system
   c. all the previous answers are correct
4. The solar eclipse occurs when ....
   a. the Earth is between the Moon and the Sun.
   b. the Moon is between the Earth and the Sun.
   c. the Sun is between the Earth and the Moon.

[B] Give reasons for each of the following :

1. Lunar eclipse does not require precautions or special devices to look at.

   ....

2. The wheelbarrow is a lever that always conserves effort.

   ....

[C] Compare between :

Points of comparison	Electric conductors	Electric insulators
Definition :	....	....
Example :	....	....

---

4 [A] Correct the underlined words in the following statements :

1. The glass bulb of the light bulb (lamp) contains <u>**hydrogen**</u> gas.

   (....................)

2. The **soil** secretes a sticky substance that helps in root penetration through soil particles. (..................)

3. The fulcrum is between the force and the resistance in **third** class levers.
(..................)

[B] Mention one function or one use for each of the following :

1. Stoma : ....

2. Crowbar : ....

[C] Examine the opposite figure, and answer the questions :

1. Name the way of connecting electric lamps in :
   ⓐ ....
   ⓑ ....

2. The way used to connect electric lamps in houses is .... because ....
....

ⓐ

ⓑ

11 Damietta Governorate — The Educational Directorate

Answer the following questions :

1 [A] Complete the following statements :

1. First class levers conserve effort when the .... arm is longer than the .... arm.

2. The simple electric circuit consists of an electric lamp, ... and electric switch.

3. The transmission of water from the soil to the vacuole of the root hair occurs by the .... feature, while mineral salts are transmitted from the soil by ....

4. When a part of the Moon enters the Earth's umbra, ... phenomenon occurs, while .... phenomenon occurs when the cone shadow of the Moon does not reach the Earth's surface.

[B] Compare between :

The function of lever in the tweezers and nutcracker.

....

....

2 **[A] Write the scientific term of each of the following :**

1. Losing of excess water in the form of water vapour from the plant leaves through stomata. (....................)
2. A rigid bar that rotates around a fixed point (fulcrum) and is affected by force and resistance. (....................)
3. A way in which the light bulbs are connected one after the other. (....................)
4. Materials which allow electric current to pass through. (....................)

[B] What would happen if ... ?

1. The length of force arm is half the length of resistance arm for a lever.

   ....

2. Putting out the electric fires with water.

   ....

3. The concentration of the solution decreases inside the vacuole of the root hair.

   ....

3 **[A] Choose the correct answer :**

1. Force arm is sometimes equal to the resistance arm in .... class levers.

   a. first b. second c. third d. first and third

2. The fluorescent lamp contains argon gas and a little of ....

   a. helium. b. mercury. c. oxygen. d. chlorine.

3. Water and dissolved substances rise in the plant by ....

   a. cortex. b. endodermis. c. epidermis. d. xylem.

4. The phenomenon of the lunar eclipse occurs on the .... day of the lunar month.

   a. 10^{th} b. 15^{th} c. 25^{th} d. 28^{th}

[B] Mention one function for the following :

1. The guard cells in plants.

   ....

2. Tungsten filament in the electric lamp.

   ....

[C] From the following table, find the length of resistance arm (X) :

Force (Newton)	Force arm (cm.)	Resistance (Newton)	Resistance arm (cm.)
50	20	200	(X)

....

4 [A] Give reasons for :

1. The second class levers save effort usually.

....

2. In houses, electric lamps are connected in parallel.

....

3. In plants, the root hair secretes a sticky substance.

....

[B] Correct the underlined words :

1. In the electric lamp, the electric energy is converted into **mechanical** energy. (..................)

2. Root hairs extend from the cells of **endodermis** layer. (..................)

12 Kafr El-Sheikh Governorate — The Educational Directorate

Answer the following questions :

1 [A] Complete the following statements :

1. The fluorescent lamps contain .... gas.
2. The .... are widely spread on the lower surface of the leaves.
3. The electric bulbs are connected in .... in the houses.
4. The seesaw is considered a .... class lever.
5. The .... is the result of an electric current passing through the human body.

[B] Look at the opposite diagram, then answer the following questions :

1. Write the names of parts ① & ②.

① ....

② ....

2. Mention the function of part ③.

....

2 **[A] Write the scientific term for each of the following :**

1. A rigid bar that rotates around the fulcrum, and is affected by force and resistance. (....................)
2. The materials that do not allow the flow of electricity through them. (....................)
3. Plant loses excess water in the form of water vapour. (....................)
4. Fires occur due to the increase in the temperature of the electric machines. (....................)
5. Occurs when a part of the Moon enters the shadow area of the Earth. (....................)

[B] What happens in the following cases ?

1. When an electric lamp which is connected in parallel with others burns.
....
2. When the Earth, the Moon and the Sun are nearly on one straight line with the Moon in the middle.
....

---

3 **[A] Choose the correct answer :**

1. The lunar eclipse phenomenon occurs .... of the lunar month.
 a. at the end b. in the middle c. at the beginning
2. Tungsten is preferred to use in electric lamps because of ....
 a. its low melting point. b. its bad conductivity of electricity.
 c. its high melting point.
3. Levers that always conserve the effort ....
 a. first class levers. b. second class levers. c. third class levers.
4. Root hair absorbs water by ....
 a. swallowing. b. osmosis. c. guard cells.
5. In the levers of first class ....
 a. the force is between the resistance and the fulcrum.
 b. the resistance is between the fulcrum and the force.
 c. the fulcrum is between the force and the resistance.

[B] Give reasons for each of the following :

1. Lunar eclipse does not require precautions, warnings or special devices to look at it as in the case of the solar eclipse.
....
2. The age of the root hair does not exceed few days.
....

4 [A] Put (✓) in front of correct statements and sign (✗) in front of false statements :

1. The two phenomena of lunar and solar eclipses are repeated regularly and can be predicted. ( )
2. The root hair is recognized with its thick membrane. ( )
3. Fires resulted from electricity are extinguished by water. ( )
4. Levers were described by "Archimedes" the Greek scientist. ( )
5. The filament of the fluorescent lamp is made of aluminium. ( )

[B] A third class lever with a force arm of length 5 cm., and the length of the arm of the resistance is 15 cm. If the resistance has a value of 300 Newton, calculate the value of the affecting force.

....

....

13 El-Behiera Governorate — The Educational Directorate

Answer the following questions :

1 [A] Choose the correct answer :

1. There are many holes "stomata" widely spread on ....
   a. the lower surface of the plant leaves.
   b. the plant stem. c. the palnt root.
2. .... is a second class lever.
   a. The sweet holder b. The wheelbarrow c. The crowbar
3. Which of the following gases is found in the fluorescent lamp but not in the electric lamp ? ....
   a. Neon. b. Argon. c. Mercury vapour.
4. All the following substances are good electric conductors except ....
   a. aluminium. b. copper. c. rubber.
5. .... occurs to the Sun when the Moon comes in an orbit higher from the Earth.
   a. Partial lunar eclipse b. Total lunar eclipse c. Annular eclipse

[B] Complete the following sentence :

Types of injuries resulting from improper use of electricity are divided into .... and ....

---

2 [A] Write the scientific term for each of the following statements :

1. The losing of excess water in the form of water vapour from the plant leaves. (....................)
2. Two cells surround the stoma in the plant leaves. (....................)
3. It occurs when the whole Moon enters the shadow area of the Earth. (....................)
4. It is the type of levers that always doesn't converse effort. (....................)
5. It consists of a battery, a lamp, wires and electric switch to connect the battery to the lamp. (....................)

[B] The affecting force of a first class lever equals 500 Newton and the length of force arm is 20 cm. and the resistance is 200 Newton. Calculate the length of the resistance arm.

....

....

---

3 [A] Give reasons for :

1. The second class levers conserve effort.

....

2. Root hair secretes a sticky substance.

....

3. Water cannot be used to put out the fire resulting from electricity.

....

4. We should not look directly at the Sun with the naked eye.

....

[B] Complete the following table :

Points of comparison	Connecting in series	Connecting in parallel
Light intensity of the lamp :	....	....
Removing one of the lamps from the connection :	....	....

[C] What happens in the following .... ?

1. When a part of the Moon enters the shadow area of the Earth.

....

2. Light bulb contains atmospheric air instead of argon gas.

....

4 **[A] Complete :**

① ……………………………………
② ……………………………………
③ ……………………………………
④ ……………………………………

[B] Correct the underlined word :

1. The sweet holder is a lever from the **first** class. (………………)
2. The salt concentration inside the root hair vacuole is **half** the salt concentration of soil solution. (………………)
3. In the **second** class lever the fulcrum is between force and resistance. (………………)
4. The human body is a good conductor of electricity as it contains **gases**. (………………)

14 Fayoum Governorate — The Educational Directorate

Answer the following questions :

1 **[A] Complete the following statements :**

1. There are holes called …………… widely spread on the lower surface of the plant leaves used in making …………… process.
2. When the arm of force is shorter than the arm of resistance so, …………… is larger than …………… and thus the lever does not save effort.
3. In the solar eclipse, …………… is found between the Sun and ……………

[B] Mention one function for each of the following :

1. The two guard cells.
……………………………………………………………………………
2. Fluorescent lamp.
……………………………………………………………………………

2 **[A] Choose the correct answer :**

1. Which of the following gases is found in the fluorescent lamp but not in the light bulb ? ....

   a. Neon. b. Argon. c. Mercury vapour.

2. Which of the following levers has the force between the resistance and fulcrum ? ....

   a. Nutcracker. b. Scissors. c. Sweet holder.

3. Root hair wall is ....

   a. thick. b. thin. c. average.

4. The filament of the light bulb is made of ....

   a. iron. b. copper. c. tungsten.

[B] Give reasons for the following :

1. We should not look directly at the Sun by the naked eye during a solar eclipse.

   ....

2. The age of a root hair does not exceed a few days.

   ....

---

3 **[A] Write the scientific term for the following :**

1. A phenomenon occurs when part of the Moon enters the shadow area of the Earth. (....................)
2. Levers in which the resistance is found between effort force and fulcrum. (....................)
3. The way where the bulbs are connected in branching routes and the lighting of the lamps is not affected by increasing in their number. (....................)
4. One of the dangers of electricity which causes the damage of the tissues of the body. (....................)

[B] What would happen in the following cases ... ?

1. The electric fire is put out by water.

   ....

2. The cone shadow of the Moon does not reach the Earth's surface.

   ....

4 **[A] Write the labels on the following figure :**

① ....

② ....

③ ....

④ ....

[B] Correct the underlined word :

1. The wheelbarrow is from the **third** class levers. (..................)
2. The duration of the **lunar eclipse** does not exceed 7 minutes and few seconds. (..................)
3. The human body is considered a good conductor of electricity because it contains **gases**. (..................)

[C] A force of 200 Newton affected a lever of the third class, its force arm equals 5 cm., the resistance equals 100 Newton and the length of the arm of resistance is 10 cm. Discover : Is this lever balanced or not ? And why ?

....

....

15 Beni-Suef Governorate — The Educational Directorate

Answer the following questions :

1 **Complete the following statements :**

1. The fish hook is a .... class lever and the crowbar is a .... class lever.
2. The glass tube of the fluorescent lamp contains inert .... gas and a little of ....
3. In the solar eclipse, ... is found between the Sun and ....
4. Root hairs extend from .... layer of the ....

---

2 **Write the scientific term for the following :**

1. Levers that have the force of effort between the force of resistance and the fulcrum. (..................)
2. Holes widely spread on the lower surface of the plant leaves. (..................)

3. Astronomical phenomenon occurs when the whole Moon enters the shadow area of the Earth. (..................)
4. Result because of passing of an electric current through the human body. (..................)

3 **[A] Choose the correct answer :**

1. From materials that are electricity conductors is ....
   a. wood. b. copper. c. glass.
2. Which of the following is found in the light bulb ? ....
   a. Mercury. b. Neon gas. c. Tungsten.

[B] Mention one function for :

1. Guard cells in plant leaves.
   ....
2. Mirrors in Hubble telescope.
   ....

4 **[A] Give reasons :**

1. When the whole Moon enters the semi-shaded area of the Earth, it is not considered lunar eclipse.
   ....
2. Impure water is not used to put out the fire resulting from electricity.
   ....

[B] The figure represents a type of levers :

Effort force (F)
Resistance force (R)
Fulcrum (O)

1. What is the type of this lever ?
   ....
2. What is the importance of this lever ? Why ?
   ....

16 El-Minia Governorate — The Educational Directorate

Answer the following questions :

1 **[A] Complete the following statements :**

1. Nutcracker is from .... class levers and fishing tool is from .... class levers.

2. The filament of the light bulb is made of .... that is because it has high ....
3. .... is exerted by a person to equilibrate the resistance force.

[B] What are the types of telescopes ?

....

....

---

2 **[A] Write the scientific term for the following statements :**

1. A rigid bar that rotates around a fixed point called the fulcrum, and is affected by force and resistance. (..................)
2. It consists of a battery, a lamp, connecting wires and switch. (..................)
3. A glass tube is empty of air and contains an inert gas and a little mercury. (..................)
4. They are tiny holes that widely spread on the lower surface of the plant leaves. (..................)

[B] What happens if .... ?

1. The light bulbs in the house are connected in series.
....
2. You place the electric heater too close to furniture and rugs.
....
3. Put eosin solution in a test tube during the test of the rise of water and dissolved salts from the root to the other parts of the plant.
....

---

3 **[A] Put (✓) or (✗) in front of the following statements :**

1. First class levers have the fulcrum between the effort force and the resistance force. (   )
2. Wood material is a good conductor of electricity. (   )
3. Water is not used to put out electric fires. (   )
4. The concentration of the solution inside the vacuole of the root hair is higher than that of the soil. (   )

[B] Compare between the solar eclipse and the lunar eclipse :

Points of comparison	Solar eclipse	Lunar eclipse
1. How does it occur ?	....	....
2. Types.	....	....

4 **[A] Give reasons for the following :**

1. During the start of total lunar eclipse, the colour of the Moon tends to be red.

   ....

2. Special glasses must be used to look at the solar eclipse.

   ....

3. The age of a root hair does not exceed a few days.

   ....

[B] A third class lever, where the effort force = 200 Newton, the force arm = 5 cm. and the resistance force = 100 Newton. Calculate the length the of the resistance arm.

....

....

17 Assiut Governorate — The Educational Directorate

Answer the following questions :

1 **[A] Complete the following statements :**

1. The lever is a rigid bar that rotates around a fixed point called ....
2. The simple electric circuit consists of .... , ... and..............
3. Metallic materials are considered from the electric .... while glass and rubber are considered from the electric ....
4. Lunar eclipse phenomenon occurs when .... is located between .... and .... on one straight line.

[B] Calculate the length of the resistance arm that regains the balance of the lever. If you know that the length of the force arm is 2 cm, the hanging force is 8 Newton and the resistance is 4 Newton.

....

....

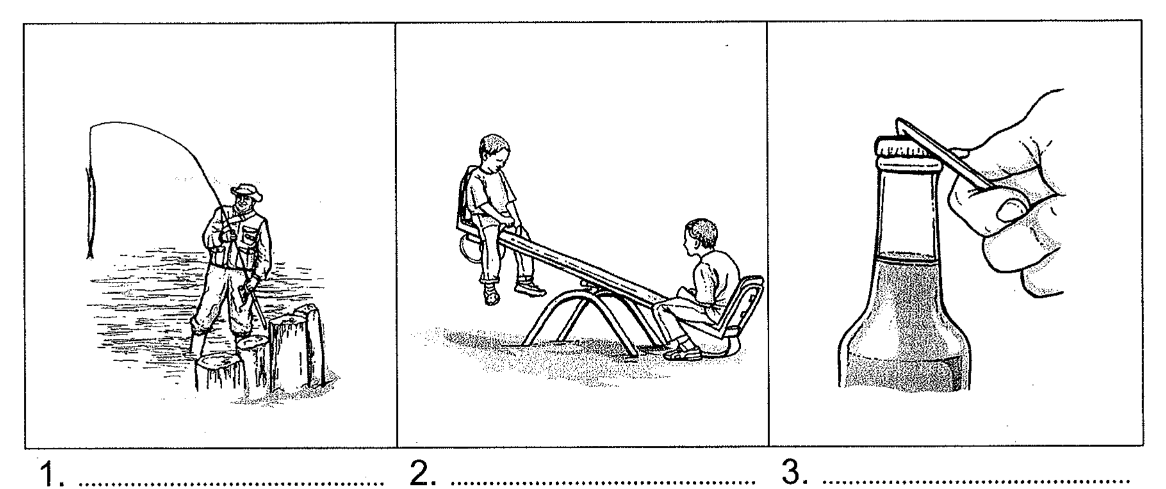
2 **[A] Write the suitable scientific term for the following statements :**

1. A tool used to convert electric energy to light energy. (..................)
2. A part of the plant that penetrates through the soil particles and fixes it. (..................)
3. One of the dangers of the electricity is causing the damage of the tissues of the human body. (..................)

4. It occurs when a part of the Moon enters the shadow area of the Earth. (..................)

5. It is a way of connecting the electric lamps, in which the light intensity decreases with the increase in their number. (..................)

[B] Classify the following machines according to their types :



1. .... 2. .... 3. ....

---

3 [A] Choose the correct answer :

1. The root hair secretes a .... substance which helps in absorbing water.
   a. solid b. sticky c. flexible d. smooth
2. All the following materials allow the flow of the electric current except ....
   a. copper. b. iron. c. rubber. d. aluminium.
3. Force arm is sometimes equal to resistance arm in .... class levers.
   a. first b. second c. third d. first and third
4. The phenomenon of the lunar eclipse occurs on the .... day of the lunar month.
   a. 10^{th} b. 15^{th} c. 25^{th} d. 28^{th}

[B] Correct the underlined words in the following sentences :

1. The filament of the light bulb is made of **carbon**. (......................)
2. **Osmosis** is a biological process in which the plant loses excess water in the form of water vapour. (......................)
3. **Partial** solar eclipse occurs when the Moon's cone shadow (umbra) does not reach the Earth's surface. (......................)
4. **The electric fire** occurs due to the passage of the electric current through the human body. (......................)

4 [A] Notice the following figure then write the labels on the figure :

① ....
② ....
③ ....
④ ....

① ② ③ ④ + −

[B] Give reasons for the following :

1. You must not look directly at the Sun during solar eclipse.
   ....
2. The age of a root hair does not exceed a few days.
   ....

[C] What happens in each case of the following .... ?

1. The absence of guard cells which surround the stomata in the plant leaf.
   ....
2. The electric lamp contains atmospheric air.
   ....

18 Sohag Governorate — The Educational Directorate

Answer the following questions :

1 [A] Complete the following statements :

1. In the solar eclipse .... is found between the Sun and ....
2. In first class levers, the fulcrum is found between .... and ....
3. The .... in plant is surrounded by two guard cells.

[B] A force of 50 Newton affected a lever of the 2nd class its force arm 20 cm. calculate the resistance given that the arm of the resistance = 5 cm.

....
....

2 [A] Put (✓) or (✗) in front of the following statements :

1. Electric shock occurs as a result of passage of the electric current to the human body. ( )
2. Root hairs extend from endodermis layer of the root. ( )
3. The crowbar is an example of the first class levers. ( )

[B] Choose from column (B) that suits column (A) :

(A)	(B)
1. Light bulb 2. Connecting electric lamps in the house 3. The filament of the light bulb	a. is in series. b. is in parallel. c. changes electric energy to light energy. d. made of nichrome wire. e. made of tungsten wire.

1. .... 2. .... 3. ....

3 **[A] Write the scientific term of the following statements :**

1. Losing of excess water in the form of water vapour from the leaves or from other green parts. (....................)
2. Type of levers doesn't save effort. (....................)
3. The substances that allow the electric current to pass through them. (....................)
4. It occurs when a part of the Moon enters the shadow area of the Earth. (....................)

[B] Mention one function for each of the following :

1. Fluorescent lamps.
....
2. Levers.
....

4 **[A] Choose the correct answer from the following :**

1. In the plants, the walls of root hairs are ....
   a. thick. b. thin. c. intermediate.
2. From the examples of good electric conducting substances is ....
   a. wood b. plastic. c. copper.
3. .... is considered from the third class levers.
   a. Fish hook b. Seesaw c. Nutcracker
4. Force arm is sometimes equal to resistance arm in .... class levers.
   a. first b. second c. third
5. The number of stomata in the plant is widely spread on the ....
   a. upper surface of the leaf. b. lower surface of the leaf. c. stem.

[B] Give reasons for the following :

1. The second class levers save effort.

....

....

2. Decorative lamps are connected in parallel not in series.

....

....

19 Luxor Governorate — The Educational Directorate

Answer the following questions :

1 Complete the following statements :

1. .... and .... are two ways for connecting electricity.
2. From the functions of levers, increasing .... as in crowbar and increasing .... as the manual broom.
3. Levers were first described by the scientist .... while the light bulb was invented by the scientist ....

---

2 [A] Choose the correct answer from the following :

1. The filament of light bulbs is made of ....

   a. iron. b. tungsten. c. carbon.

2. .... is a good conductor of electricity.

   a. Wood b. Plastic c. Copper

3. The duration of the solar eclipse does not exceed ....

   a. 5 minutes. b. 7 minutes. c. 7 minutes and few seconds.

[B] The effort force of a lever is 30 Newton, and the length of its force arm is 20 cm., if it is affected by a resistance force of 20 Newton.

1. Calculate the length of the arm of resistance ?

....

....

2. Does this lever conserve effort or not ? Why ?

....

....

3 **[A] Give reasons for each of the following :**

1. The type of eclipse changes by the movement of the Moon in front of the Sun.

....

2. Water is not used to put out electric fires.

....

[B] Put (✓) or (✗) in front of the following statements :

1. The electric overload which heats up the wire causing electric fire. ( )
2. Fluorescent lamps are called neon lamps, because they contain an inert gas called neon. ( )
3. The partial solar eclipse is formed when the cone shadow does not reach the Earth. ( )
4. The fulcrum in scissors lies between the effort force and the resistance force. ( )
5. The simple electric circuit consists of battery, electric lamp and insulator to connect the battery to the lamp. ( )

---

4 **[A] Write the scientific term of the following statements :**

1. One of the dangers of electricity that occurs as a result of the passage of the electric current through the human body. (....................)
2. The type of levers that always doesn't save effort. (....................)
3. A device used to convert electric energy into light energy. (....................)

[B] Identify the astronomical phenomenon shown in the following figure, then answer the following questions :

1. What is the name of this phenomenon ?

....

2. The duration of this phenomenon may last for more than ....

3. Label the figure :

① ....

② ....

③ ....

Sun
①
②
③

20 Aswan Governorate — The Educational Directorate

Answer the following questions :

1 [A] Complete the following statements :

1. The nutcracker is an example of the .... levers, while the scissors are example of the .... levers.
2. .... and .... are some of the dangers of direct electricity.
3. Lunar eclipse phenomenon occurs when .... is located between .... and the Moon.
4. The root hair secretes .... substance to help penetrating the root through soil particles.
5. The filament of the light bulb is made of ....

[B] What happens in each case of the following .... ?

1. The glass bulb in the electric lamp is filled with oxygen.

   ....

2. The absence of guard cells which surround the stoma.

   ....

---

2 [A] Choose the correct answer from the following :

1. From the examples of good electric conducting substances is ....
   a. iron. b. plastic. c. wood.
2. Transpiration is ....
   a. losing of excess water in the form of water vapour from plant.
   b. transmission of water molecules through a semi-permeable membrane from high to low concentration.
   c. the absorption of water through the walls of the root of plant.
3. Which statement is correct ? ....
   a. Solar eclipse takes a time equals that of lunar eclipse.
   b. Solar eclipse takes a time more than that of lunar eclipse.
   c. Solar eclipse takes a time less than that of lunar eclipse.
4. On connecting the electric lamp in series with others, the lighting of the bulbs ....
   a. unchanged. b. decreases. c. increases.

[B] The force arm length of a third class lever is 5 cm, and the length of the arm of the resistance is 15 cm. If the resistance has a value of 300 Newton. Calculate the value of the affecting force.

....

....

3 **[A] Put (✓) or (✗) in front of the following statements :**

1. Fires resulted from electricity are extinguished by water. (   )
2. Stomata are widely spread on the upper surface of the leaf. (   )
3. Looking directly at the solar eclipse is harmful to the eye. (   )
4. Fluorescent lamps are called neon lamps because it contains inert gas called neon gas. (   )

[B] Give reasons for the following :

1. The third class levers don't save effort.

   ....

2. Avoid operating more than one machine in the same socket.

   ....

4 **[A] Write the scientific term of the following statements :**

1. It occurs when a part of the Moon enters the shadow area of the Earth. (....................)
2. Materials that don't allow the flow of electricity through them. (....................)
3. The fixed point of a rigid bar on which the bar rotates. (....................)
4. Way used to connect electric lamps in branching routes. (....................)

[B] Label the diagram :

① ....

② ....

③ ....

21 The New Valley Governorate — The Educational Directorate

Answer the following questions :

1 [A] Choose the correct answer from the following :

1. Root hair wall is ....
   a. thick. b. solid. c. thin.
2. The filament is a coiled thin wire from ....
   a. copper. b. tungsten. c. mercury.
3. The sweet holder is a lever from the .... class.
   a. first b. second c. third
4. .... is from the electric insulators.
   a. Nail b. Coin c. Eraser

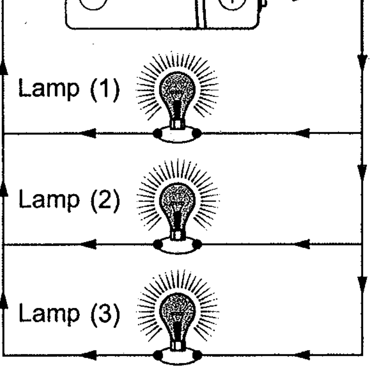
[B] Compare between the following :

Point of Comparison	Total lunar eclipse	Partial lunar eclipse
To the Moon	....	....

2 [A] Write the scientific term of the following statements :

1. The most famous telescope that revolves around the Earth. (....................)
2. The losing of water from small holes on the surface of plant leaves. (....................)
3. It is formed in the shadow area of the Moon on the Earth and in which we can't see the Sun completely. (....................)
4. Levers that have the fulcrum between force and resistance. (....................)

[B] In the electric circuit which is in front of you :



1. The kind of connecting bulbs (lamps) is
   ....
2. What happens when we unscrew one bulb or it burns out ?
   ....
3. What happens to the lighting of the bulbs when adding fourth bulb ?
   ....

3 **[A] Complete the following sentences :**

1. If the whole Moon enters in the .... area, its light turns to be faint without being eclipsed.
2. The fluorescent lamp contains inert .... gas.
3. In the third class levers the effort force is found between .... and ....

[B] Give reasons for each of the following :

1. The second class levers conserve the effort.

....

....

2. The age of the root capillary doesn't exceed a few days.

....

....

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4 **[A] Put (✓) or (✗) in front of the following statements :**

1. Putting out the electric fires with water. (   )
2. Special glasses are used to observe the solar eclipse. (   )
3. The passage of the electric current through the human body may result in an electric shock. (   )
4. Levers were first described in the year 260 B.C. by the scientist Galileo. (   )
5. The time of solar eclipse does not last more than 7 minutes and few seconds. (   )

[B] In this time table :

Force (Newton)	Resistance (Newton)	Arm of force (cm)	Arm of resistance (cm)
4	10	5	(Z)
9	6	(Y)	3
(X)	7	2	4

Find the value of : (X , Y , Z)

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22 South Sinai Governorate — The Educational Directorate

Answer the following questions :

1 [A] Complete the following sentences :

1. The manual broom is from .... class levers.
2. The root hair has a .... age.
3. In the solar eclipse .... is found between the Sun and ....
4. The filament of the light bulb is made of .... and that is because it has a high ....
5. In .... class levers the resistance is found between the force and the fulcrum.

[B] What happens in each case of the following .... ?

1. If there are no guard cells surround the stomata.
   ....
2. A part of the Moon enters the shadow area of the Earth.
   ....

2 [A] Put (✓) or (✗) in front of the following statements and correct the wrong one :

1. The light bulb is filled with oxygen gas. ( )
   ....
2. The electric shock is the result of an electric current passing through the human body. ( )
   ....
3. The soil secretes a sticky substance that helps in root penetration through soil particles. ( )
   ....

[B] Give reasons for the following :

Connecting electric lamps in the house in parallel.
....

[C] The figure show the simple electric circuit write the labels on the figure :

① ....
② ....
③ ....
④ ....

3 [A] Choose the correct answer from the following :

1. The root hair is characterized with .... wall.
   a. thick b. thin c. intermediate
2. From the first class levers is ....
   a. nutcracker. b. sweet holder. c. seesaw.
3. .... is found in fluorescent lamp and not found in electric lamp.
   a. Neon b. Argon c. Mercury vapour
4. The .... solar eclipse is formed in the shadow area of the Moon on the Earth.
   a. total b. partial c. annular

[B] A first class lever its force arm length = 20 cm. and the affected force = 400 Newton. Calculate the value of resistance if you know that the length of resistance arm = 80 cm.

....

....

[C] Compare between each of the following :

Points of comparison	Electric conductors	Electric insulators
Definition :	....	....
Example :	....	....

4 [A] Write the scientific term of the following statements :

1. Plant loses excess water in the from of water vapour. (.....................)
2. The fixed point of a rigid bar on which the bar rotates. (.....................)
3. Occurs when the whole Moon enters the shadow area of Earth. (.....................)
4. The way that the electric lamps are connected and the intensity of the light decreases with the increase in the number of lamps. (.....................)
5. Occurs in the middle of the lunar month when the Earth comes between the Moon and the Sun on one straight line. (.....................)

[B] Choose from column (B) that suits column (A) :

(A)	(B)
1. Always save effort 2. Always don't save effort 3. Sometimes save effort	a. first class levers. b. second class levers. c. third class levers. d. force.

1. .... 2. .... 3. ....

23 North Sinai Governorate — The Educational Directorate

Answer the following questions :

1 [A] Write the scientific term for the following statements :

1. The fixed point of a rigid bar. (.....................)
2. A tool used to convert the electric energy to light energy. (.....................)
3. Materials not allowing the electric current passing through it. (.....................)
4. It occurs when a part of the Moon enters the shadow area of the Earth. (.....................)
5. Biological process through which plants lose excess water in the form of vapour. (.....................)
6. The simple machines act as effort saving. (.....................)

[B] Give reasons for the following :

1. You should not look directly at the Sun during solar eclipse.
 ....
2. The presence of two pieces of lead in the electric lamp.
 ....

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2 Complete the following sentences :

1. In the solar eclipse, ... is found between the Sun and ....
2. The electric shock occurs as a result of passing of .... through the human body.
3. The root hair is characterized with .... wall.
4. Wheelbarrow is considered as .... class lever.
5. All light bulbs are connected in .... in the house.
6. Lunar eclipse occurs in the .... of the lunar month at a rate of .... per year.

3 Choose the correct answer :

1. .... is a good conductor of electricity.
   a. Iron　　b. Plastic　　c. Wood
2. The root hair secretes .... substance which helps in absorbing water.
   a. solid　　b. sticky　　c. flexible
3. The stoma in a plant is surrounded by.............. guard cells.
   a. one　　b. two　　c. three
4. Force arm is sometimes equal to resistance arm in .... class levers.
   a. first　　b. second　　c. third
5. The filament of the light bulb is made of..............
   a. iron.　　b. copper.　　c. tungsten.

---

4 **[A] A force of 50 Newton affected a lever of the second class its force arm 20 cm., calculate the resistance given that the arm of the resistance = 5 cm.**

....

....

[B] What happens in each case .... ?

1. The electric lamps contain atmospheric air.
   ....
2. The electric fire is put out by water.
   ....

[C] Correct the underlined words:

1. Root hair absorbs most water by **selective permeability**. (....................)
2. The manual broom is a **second** class lever. (....................)
3. Stomata are widely spread on the **upper** surface of leaf. (....................)

24 Red Sea Governorate — The Educational Directorate

Answer the following questions :

1 [A] Complete the following sentences :

1. There are two types of electric connection .... and ....
2. In the first class levers the fulcrum is between .... and ....
3. The solar eclipse occurs when .... , ... and the Earth in one straight line.

[B] What is meant by .... ?

1. The lever : ....
2. The transpiration process : ....

2 [A] Choose the correct answer :

1. The filament of the electric bulb made from ....
   a. iron. b. copper. c. tungsten.
2. The age of root hair is ....
   a. short. b. medium. c. long.
3. From the second class levers ....
   a. scissors. b. nutcracker. c. coal holder.
4. The lunar eclipse phenomena occur at the ....
   a. end of lunar month. b. middle of lunar month.
   c. beginning of lunar month.

[B] What happens when .... ?

1. Put out electric fire with water.
   ....
2. The osmosis process not found in the plant.
   ....

3 [A] A lever from the second class, the force affected on it 200 Newton and its arm length 50 cm., affect on resistance equals 100 Newton, calculate the resistance arm.

....

....

[B] Put (✓) or (✗) in front of the following statements :

1. Plastic is a good conductor of electricity. ( )
2. The time of solar eclipse not increase more than 7 minutes and few seconds. ( )
3. If the force arm is shorter than resistance arm, the lever saves effort. ( )

4 [A] Write the scientific term for the following statements :

1. Substances not allow the electric current to pass through. (..................)
2. It happens for the Moon when it enters completely in the Earth umbra. (..................)
3. Two cells surround the stoma in the plant leaf. (..................)
4. It resulted when the temperature increase in the electric machine. (..................)

[B] Give reasons for the following :

1. We should not look directly at the Sun with naked eye.
....
2. We use inert gas instead of air in the electric lamp.
....

25 Matrouh Governorate — The Educational Directorate

Answer the following questions :

1 [A] Complete the following sentences :

1. In the first class levers, the fulcrum is found between .... and ....
2. Root hair wall is ....
3. There are two types of injuries resulting from the improper use of electricity which are .... and ....
4. In the lunar eclipse, ... comes between the Sun and ....

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2 [A] Choose the correct answer :

1. From the examples of third class levers ....
   a. sweet holder. b. scissors. c. nutcracker.
2. .... is a good conductor of electricity.
   a. Plastic b. Iron c. Wood
3. .... absorb water and mineral salts from the soil.
   a. Leaves b. Root hairs c. Stems
4. When the electric lamp connected in parallel with several lamps in the electric circuit, the light intensity of this bulbs ....
   a. decreases. b. increases. c. remains as it.

[B] What is meant by .... ?

1. Selective permeability.
....
2. lever.
....

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3 [A] Write the scientific term for the following statements :

1. The process by which the plant loses excess water in the form of water vapour from the leaves or from other green parts. (....................)
2. A coiled thin wire made of tungsten in the light bulb. (....................)

3. Type of levers that always does not save effort. (....................)
4. A structure in the plant, where water passes through it from root to stem, then to leaves. (....................)

[B] A force of 500 Newton affects a first class lever and its arm of force equals 10 cm., the resistance equals 200 Newton and its arm of resistance equals 20 cm., in this example is the lever in state of balance or not and why ?

....

....

....

[C] What happens when .... ?

1. The whole Moon enters the shadow area of the Earth.

....

2. The electric lamps in the house are connected in series.

....

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4 [A] Correct the underlined words :

1. Stomata are widely spread on the **upper** surface of the plant leaves. (....................)
2. Looking to the **lunar** eclipse causes several harms to eye. (....................)
3. **Electric fire** occurs as a result of passing an electric current through the human body. (....................)

[B] The opposite figure represents an astronomical phenomenon :

1. Mention the name of it.

....

2. Write the labels :

① ....

② ....

③ ....

④ ....